University of Southern Queensland

The dynamics, implications and effects of knowledge creation in professional learning communities: Three case studies.

A Dissertation submitted by

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ABSTRACT

Australia faces many challenges in a globalised and rapidly changing world. Schools are increasingly being given responsibility for ensuring the future economic, social and political wellbeing of the nation and its successful transition into the knowledge age. Teachers have the responsibility of educating their students for an as yet unknown future. To meet these complex professional challenges, teachers need to become creators rather than consumers of knowledge. Through engaging in knowledge creation work teachers can re-image their work, reconceptualising the meaning of teacher professionalism.

The study explores understandings of knowledge creation that emerge from the experiences of three Queensland schools engaged in IDEAS, a process of whole-school renewal which focuses on the work of teachers. In each case, through collaborative effort, the teachers created new knowledge. How this happened, what was achieved, the dynamics of the relationship between individual and group learning, and the subsequent impact on practice varied from case to case. The nature of the knowledge created was strongly influenced by contextual factors such as the dominant organisational paradigm, socio-emotional climate, cognitive processes, leadership and organisational coherence.

In each school extensive data were gathered through in-depth interviews, artefact and document collection, and participant observation, particularly of IDEAS related activities. The story of each school and its engagement with IDEAS – constructed from the accounts of the teachers – is told to provide a basis for understanding knowledge creation in each context. In the final stage of analysis, cross-case comparisons are made to provide a more generalised understanding of knowledge creation processes and the factors which impact on the nature of the knowledge produced. The findings indicate a link between the creation of knowledge in the three schools and a re-imaging of teachers' work.

CERTIFICATION PAGE

CERTIFICATION OF DISSERTATION

I certify that the ideas, experimental work, results, analyses and conclusions reported in this dissertation are entirely my own effort, except where otherwise acknowledged. I also certify that the work is original and has not been previously submitted for any other award, except where otherwise acknowledged.

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Signature of Candidate Date

ENDORSEMENT

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Signature of Supervisor Date

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CHAPTER 1: An Introduction to the Study

> We are in the midst of a revolution from which a new order is emerging. The solutions of the past decades will not suffice in the new knowledge age (ISR, 2000, unpaginated).
>
> Education of the highest quality is the foundation for all our futures. It is education which empowers us to rise to the challenges of social, cultural, economic and technological change that we confront daily (Kemp, 2001, p.3).

1.1 Overview

Australian schools are facing complex challenges in times of rapid change. Change, arising from globalisation and Australia's responses to globalising forces, is having a profound economic, social and political impact on the country. Schools are being given a central role in ensuring the future prosperity and stability of Australia – they are also charged with the task of dealing with many of the problems arising from the transition from the industrial age to the knowledge age. Schools have a huge task, catering for the diverse needs of their current student cohorts and preparing them for success in a future that cannot be predicted.

Against this background, the study inquires into the dynamics, implications and effects of professional knowledge generation in three schools. It is premised on the belief that the creation of contextualised professional knowledge is fundamental to teachers reimaging their profession to meet challenges posed by rapid change. The study rests on the assumption that the creation and use of contextualised knowledge enables teachers to be flexible and responsive to the demands of educating their students for the future. It tracks and explores the knowledge creation process in specific settings as teachers work together with common purpose to build their capacity to enhance school outcomes.

Each school is different, its context broadly determined by the particular group of students and teachers and by the community served. Difference also arises out of

the school culture, socio-emotional climate, relationships of power, the available resources and infrastructural arrangements. Within their particular settings, solutions to problems may be presented to schools in the form of systemic policies and directives. Teachers can also draw on public professional knowledge to help them meet complex challenges. However, while decontextualised professional knowledge may be helpful, there are no 'one-size-fits-all' solutions in conditions of diversity and change. Through working and learning collaboratively, within the professional community of the school, teachers may create and utilise knowledge relevant to their particular context. In doing so, they are reimaging their work and redefining their professionalism.

This inquiry explores the creation and utilisation of contextualised professional knowledge within the context of a whole-school renewal project called *Innovative Designs for Enhancing Achievements in Schools* (IDEAS)[1]. While originating outside the school, IDEAS is driven from within, primarily through the work of teachers. It is a process that teachers can use collectively to generate new contextualised knowledge, building capability to achieve their shared aspirations and improve school outcomes.

1.2 The Focus of the Inquiry

Seeking to illuminate knowledge generation and utilisation processes in three case study schools, the inquiry looks at the type of organisational learning that is occurring, who is involved, and how it is geared towards improving student achievement. Its ultimate concern is how teachers' collective learning generates knowledge that changes both teacher classroom practice and ways of working.

This study is grounded in the reality of difficulties faced by teachers as they struggle to reconcile the complex demands of the post-industrial and post-modern world from within institutions that are essentially modernist (Hargreaves, 1994; Usher & Edwards, 1994). The inquiry seeks to observe groups of teachers as they strive to work as 'collaborative individuals' "…emancipated by discontinuity,

[1] A school renewal project developed by the University of Southern Queensland in partnership with Education Queensland. Since 1998, close to one hundred and fifty Queensland schools have participated in the project. In 2002 IDEAS moved into a DEST sponsored national trial, involving schools in ACT, NSW and WA.

empowered by knowledge, and driven by values" (Limerick, Cunnington & Crowther, 1998), and to give voice to their experiences.

The objectives are to discover:

1. how the knowledge created within a professional learning community is informed by both tacit and explicit prior knowledge;

2. the dynamics of the relationship between individual teacher knowledge and the shared knowledge generated by the group;

3. how the knowledge created by the group may be linked to changing teacher practice;

4. how the learning of the professional community is maintained by the professional group;

5. the contextual factors that support or hinder the knowledge creation processes;

6. factors influencing the dissemination of new knowledge across the school to teachers not involved in creating it.

Drawing these objectives together, the following question provides the focus for the research and encapsulates the research problem:

> Focus Question:
> What understandings of 'knowledge creation' emerge from the experiences of professional learning communities engaged in a process of whole-school renewal?

At the heart of the conceptual framework for the inquiry is the notion of knowledge creation. Clustered around this central construct are a series of concepts related to knowledge. These include an understanding of the nature of knowledge and how this has changed over time leading, in particular, to consideration of knowledge as a social construction. Different types of knowledge – individual and group, tacit and explicit, practical and public – are fundamental to consideration of the knowledge creation spiral. The processes of knowledge creation, based on the sharing and transformation of knowledge, lead into an

associated cluster of concepts - those of individual and organisational learning, of shared and distributed cognition and of organisational culture as a cognitive process. Other concepts relate to the environment for knowledge creation – the professional learning community, socio-emotional conditions in organisations and sense of individual and organisational efficacy.

Research Questions

The conceptual framework and focus question were used to generate the following questions that guided the research in each of the case study schools:

Research Question 1: *Through what processes can professional learning communities be said to 'create' new knowledge?*

Research Question 2: *What kinds of individual and organisational learning support the whole-school renewal effort?*

Research Question 3: *What are the factors that encourage and constrain the creation of knowledge and its translation into action?*

1.3 The Context of the Inquiry

Seeking to explore the generation and use of professional knowledge in a range of school contexts, this inquiry is an account and analysis of the engagement in IDEAS of three Queensland schools: a state high school in a rural centre; a Lutheran primary school in a regional city; and an urban state primary school on the fringes of the State capital. The schools are diverse but commonality is provided by their engagement in IDEAS. Difference is respected because although each of the schools is engaged in a common process, the way that this is enacted varies from school to school, depending on the particular context. The inquiry also respects diversity within schools by recognising the coexistence of multiple perspectives.

The schools selected for study were identified on the basis of their voluntary participation in IDEAS – with the involvement of all or a significant number of staff members working collaboratively. Processes central to the project require teachers to work together to envision a desired future and develop agreement on

what constitutes excellent teaching and learning in their particular context. This entails the collaborative engagement of teachers in knowledge creation activity.

A considerable amount of research-based knowledge is embedded in IDEAS. This professional knowledge, while originating outside the school, provides a platform for school renewal that teachers can utilise as they engage in the *ideas* process. Working with IDEAS, teachers share their knowledge, engaging in professional conversations and developing systems of shared understanding. In this way professional knowledge from outside the school is used in conjunction with the knowledge generated through the sharing of individuals' practical knowledge within the school – creating new contextualised professional knowledge grounded in both.

Before describing IDEAS in more detail, it is important to explore what is behind the assertion that Australian schools are facing complex challenges in times of rapid change. The brevity of this assertion belies the enormity of the change, the speed at which it is occurring and the complexity of the challenges created for schools.

1.4 The Context for Schools

> There is taking place now a shift in the way our world is organised and the way in which we see reality; therefore, there has to be a parallel paradigm shift in schools in order that they do not become asynchronous with the society that they intend to serve (Bowring-Carr & West-Burnham, 1997, p.38).

After briefly outlining what is meant by globalisation and discontinuous change, this section considers the impact of globalising forces on Australia and the significant challenges they create for Australian schools. As the circumstances become more challenging, schools are being given increasing responsibility for the future success of their students and the advancement of the nation in a changing world. With increasing emphasis on education as the foundation for social and economic progress, schools are being given the responsibility for ensuring that Australia can make the transition from the industrial age to the knowledge age, maintaining social cohesion and economic competitiveness in

global markets. To meet the challenges of such complex times requires a reconceptualisation of teacher professionalism. As knowledge creators, teachers may re-image their role and change the nature of their work.

1.4.1 Globalisation and Change

To say the world is rapidly changing is axiomatic. Change, now at discontinuous levels, fuelled by globalisation and the technologies which support it, is affecting countries worldwide. Calling it "one of humanity's most ambitious efforts" Wishard describes globalisation as "the long-term effort to integrate the global dimensions of life into each nation's economics, politics, and culture" (1999, p.60). Development within nations increasingly takes place as part of a global process.

This change may be described as revolutionary. In eighteenth century Europe, a process of industrialisation began, transforming social and economic relationships. Now, as a result of advances in information and communication technologies, in global transportation networks and the progressive opening up of markets (Worthington, 2001; Charles, 1999) the industrial age is being superseded by the knowledge age (Drucker, 1994), and a global knowledge-based economy is emerging:

> The new economy will be as different from what preceded it, as was the industrial era from feudalism, and it is already beginning to have a comparable impact on social relationships and institutions (Sheehan, 1999).

Indeed, the scale and speed of the current transformation from the industrial age to the knowledge age makes the transition more dramatic (Capra, 1982). It requires new ways of understanding the world, moving away from the industrial paradigm and seeing the world from a knowledge perspective (Sveiby, 1999). In the new economy, the basis for competition has moved from cost to knowledge generation and utilisation (Dellit, 2000; Kiely, 1999) and associated intangibles such as human and relationship capital (Batterham, 2000).

> Competitiveness is increasingly based in intangibles such as knowledge capabilities, creativity, the capacity for continuous innovation and relationships…(Organisations) are differentiating themselves on the basis of what they know (Charles, 1999, p.3).

Economies are experiencing deep structural change, across all sectors, with significant social implications (McKeon, 2000; Sheehan, 1999). The nature of organisations is changing and the knowledge worker has come to the fore (Drucker, 1994, 2001; Georgopoulos, 2000).

1.4.2 The Impact of Globalisation and Change on Australia

The emergence of the global economy has tremendous implications for Australia as the national economy is increasingly buffeted by world economic forces. It is affected by the decisions of transnational corporations (Suter, 2001) and by "…the trillion or so dollars which flows through global markets every day" (Westfield, 1999, p34). The impact of economic downturn in other places, for example, Asia and, more recently, America, it also keenly felt (Gottleibsen, 2001).

As Australia's competitive advantage has traditionally arisen from mineral resources and agricultural produce, its transition into the new economy is not an easy process. It is becoming clear, however, that the creation, distribution and utilisation of knowledge is an increasingly important factor underlying the country's economic growth (ISR, 2000). According to the Government's Chief Scientist, it is Australia's science capability and its capacity to innovate that will form the basis of wealth creation and job growth:

> Innovation is…the only way forward…the key to competitiveness, employment growth and social well-being. The cycle of innovation must be fed by new ideas and basic knowledge (Batterham, 2000, p.5).

Australia may be reasonably positioned to take advantage of the economic benefits afforded by economic globalisation and technological advances, but it has to be prepared to meet the associated social challenges. Society is increasingly divided as some groups benefit and others are left behind (Rottwell, 1999) – a gap that Beazley describes as "a fundamental disconnect" (*Australian*, 6 May 1999, p.1). Growing numbers of people feel alienated and excluded from the political process (Suter, 2001). Unemployment rates are increasing disproportionally for some sectors of the Australian community (Swan, 1999; Thomas, 1999). The negative impact of globalisation and the changing fabric of Australian society are further illustrated by the following:

> Farewell to the 'fair-go' society – as society fragments…the new Australia is breaking up into extremes of advantage and disadvantage …The increasingly visible polarisation occurring within our cities is growing between rural and urban Australia as well (*Australian,* 19 April 1999, p.10).
>
> Contemporary Australian society seems overwhelmed by social problems. At a time of apparent economic prosperity, widespread ambivalence about the benefits of economic change is reflected in community concerns about negative social consequences (*Australian,* 5 May 1999, p.13).

The potential erosion of culture, the growing division between groups within society, the reduced influence of national politics, and the changing nature of the workforce are of profound significance for Australian society. These factors pose huge challenges for Australian schools, currently poised in the transition between two eras, influenced by both (Middleton & Hill, 1996). It is becoming clear, however, that schools will have a central role in shaping Australia's future.

1.4.3 The Challenge for Australian Schools

The transition from the industrial age to the knowledge age challenges Australian schools on a number of fronts. The increasing pluralism and fragmentation of society is creating great diversity which is reflected in student populations. Disadvantage and other problems arising from social and economic change have an impact on the lives of many young people. Schools are expected to provide programs to counteract this, increasingly providing pastoral care and an emphasis on positive relationships (Middleton & Hill, 1996) to meet the social and welfare needs as well as the academic needs of students.

Schools face the difficult task of preparing students for the future in a changing economic environment. In Australia, as elsewhere, employment patterns are changing. The number of unskilled and semi-skilled workers has sharply declined and new jobs requiring a different level of education and different skills are being created (Queensland State Education, 1999; Drucker, 1994). Darling-Hammond (1997) predicts that by 2010, fifty percent of jobs in the US will require technical skills and knowledge and that the rapid pace of technological change will require most workers to change their occupations several times. Australian employment is following similar patterns and trends (Maglen & Shah, 1999; Maglen, 1993).

Individuals who do not succeed in school now have little chance of finding employment (Middleton & Hill, 1996; National Commission on Teaching and America's Future, 1996).

1.4.4 Schools: Providing the Foundations for Australian Progress

Education is increasingly seen as the fundamental building block of both economic and social progress (Johnson, 2001). There is a growing expectation that what students learn at school, and the attitudes they develop towards learning, will continue to have a significant influence on their lives, helping them to shape their futures. This is illustrated in the explicit economic and social imperatives outlined in the philosophy of the Queensland State Education 2010 Project, described as "a pragmatic response to a globalised, post-industrial society" (Queensland State Education, 2000, p.9).

The corollary of the knowledge economy is a learning society, founded on lifelong learning. Lifelong learning is seen as one of the keys to the twenty-first century, a way of meeting the challenges imposed by a rapidly changing world (Delors, 1996), of attacking emerging economic and social problems (BHERT, 2001; National Commission on Teaching and America's Future, 1996) and of people retaining mastery of their own destinies. The role of schools is to establish a love of learning in their students, disposing them to continue learning throughout their lives (BHERT, 2001; Moran, 2000). In a knowledge based economy, lifelong learning is important because employers are demanding high skill levels of workers. Also, with technological change and shifting market conditions these skills need to be constantly updated (Batterham, 2000; Johnson, 1998). Schools are also perceived to have a key role in creating a cohesive society (Dellit, 2000). Socially, lifelong learning is seen as a means of breaking the nexus between advantage and disadvantage. It is also a way of ensuring democratic engagement and personal fulfilment (BHERT, 2001).

Creating a disposition towards lifelong learning is only one aspect of the contribution that schools can make to Australia's economic future. Schools are perceived as vital in developing innovative and entrepreneurial attitudes in students, as well as creativity and a range of appropriate skills (ISR, 2000). The

previous Federal Minister for Education (Kemp, 1999), talked of the importance of students developing generic, transferable skills along with entrepreneurial, innovative and adaptive behaviour. He stressed the new pressures on schools and students:

> …to develop strong foundational skills, critical thinking, innovation, lifelong learning and technological and scientific literacy as the basis of our future productivity as a knowledge-based economy (Kemp, 2001, p.3).

Others talk variously of the importance of teamwork, creativity and flexibility; initiative, risk taking and perseverance; framing, analysing and solving problems; communicating ideas and information; planning and organising activities; and using a high level of technical know-how (National Education Assembly, 2001; Carneiro, 2000; MCEETYA, 1999; National Commission on Teaching and America's Future, 1996). Clearly, schools are seen as having a central role to play in creating human capital of the kind required by the knowledge economy. However, as indicated, meeting the challenges of the future goes beyond the preparation of students for employment. Social cohesion is also at stake (Manley, 1996). Social capital is important, as is education for democracy which Goodlad (2000) sees as the desirable agenda for schools. To counter the increasing fragmentation of society, schools can foster understanding between diverse experiences and multiple points of view, going beyond education for democracy, into what Darling-Hammond (1997) describes as 'education *as* democracy'.

1.4.5 Reconceptualising Teacher Professionalism

Emerging from the above description is a conceptualisation of teachers' work as central to the future economic, social and political wellbeing of the nation. Effective teachers are increasingly being seen as making a difference, and having a significant impact on students' learning and life chances (Crowther, 2001; Kemp, 2001; Long & Cass, 2001; Darling-Hammond, 2000; DETYA, 2000; Sanders, 1999; National Commission on Teaching and America's Future, 1996; Shulman, 1983; King & Newmann, 2000). Darling-Hammond asserts that:

> Despite conventional wisdom that school inputs make little difference in student learning, a growing body of research suggests that schools can make a difference, and a substantial portion of that difference is attributable to teachers (2000, unpaginated).

These arguments lend support to the prediction that schools will become the key institution of the knowledge society and teaching its key profession (Drucker, 1994).

While limited in its scope, this inquiry indicates that the creation and implementation of contextualised professional knowledge represents a movement towards that potentiality. Drawing on Drucker (1999), it is suggested that IDEAS casts teachers in the role of efficacious professionals - knowledge workers within their profession - working collaboratively to develop their specialised knowledge, continuously learning and continuously innovating. The success of schools will depend on the contextualised creation, diffusion and use of knowledge, and the way this knowledge is managed and further developed over time.

According to Crowther:

> IDEAS is distinguished by its very optimistic view of the immediate future for the teaching profession…It was founded on a confidence that teaching is potentially the most vital of professionals in a knowledge society (Crowther, 2001, p.1).

The experience of the IDEAS Project is yielding some tentative evidence:

> …that a new era for the teaching profession is possible and in fact is discernible, albeit hazily at this juncture (Andrews, Crowther & Lewis, 2001).

This study explores how, through their engagement in IDEAS, three schools may be making tentative steps at redefining themselves in response to change through teacher-generated professional knowledge. These schools are challenging the commonly held perception that teachers are consumers not creators of knowledge (Huberman, 1983). Each of the case study schools is using IDEAS as a vehicle for whole-school renewal. This provides the opportunity for knowledge creation processes to be explored in each setting, and a basis for subsequent cross-case comparisons.

1.5 IDEAS: A Process of Whole-school Renewal

The IDEAS Project (Crowther et al., 2001; Crowther, 1999) commenced in 1997, the result of an alliance between the University of Southern Queensland and Education Queensland grounded in the desire to create a school renewal process

that enhanced student outcomes. Five schools were involved in the pilot trial, commencing in 1998. By 2003, the project has advanced considerably, its continuing conceptual development informed by, and informing, the experiences of close to one hundred and fifty participating Queensland schools.

IDEAS has three essential components:

- the Research-based Framework for Enhancing School Outcomes (Figure 1) and associated concept of alignment;
- the *ideas* process (*i*nitiating, *d*iscovering, *e*nvisioning, *a*ctioning, *s*ustaining) - a five phase school-based implementation strategy (Figure 2);
- parallel leadership (Figure 3).

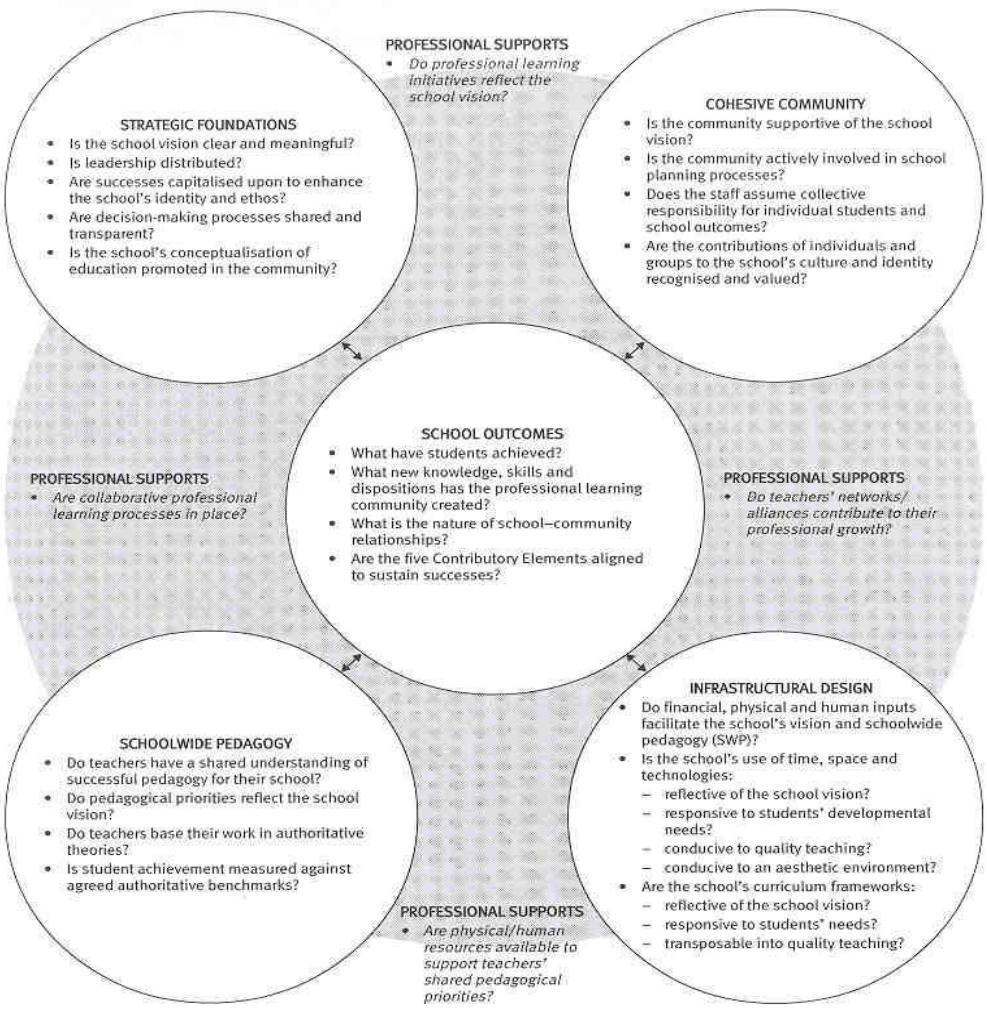
Underpinning each of these components is the concept of professional community and shared responsibility for school development and revitalisation (Crowther et al., 2001; King & Newmann, 2000; Marks & Louis, 1999; Louis & Marks, 1998; Hord, 1997). Within IDEAS is the implicit requirement for an organisation to "re-image" itself (Morgan, 1997). The new image that emerges through engagement with IDEAS relates to administrator leaders taking a strategic leadership role while teachers take a pedagogical leadership role (Crowther et al., 2001), developing a professional community of collaborative individuals (Limerick, Cunnington & Crowther, 1998). This community is underpinned by the concepts of collaboration, deprivatisation of practice, shared norms, reflective dialogue, and collective teacher focus on student learning (Louis & Marks, 1998; Kruse, Louis & Bryk, 1994).

A description of the more specific research underpinning each of the components of IDEAS follows.

The Research-based Framework

The Research-based Framework (RBF) (Figure 1) was initially grounded in the work of Newmann and Wehlage (1995) whose holistic 'circles of support' model of school reform linked teachers' work in professional learning communities to increased school capacity, authentic pedagogy and improved student outcomes. The RBF has been further informed by King and Newmann's work on school capacity (2001) and by the Hill and Crevola whole-school approach to reform

(1998, cited in Hill & Jane, 2001). Finally, Kaplan and Norton's (1996) notion of 'Balanced Scorecard' provided some clarification of the concept of alignment of key management and pedagogical processes. The alignment concept (Crowther et al., 2001), which derives primarily from the concept of 'school capacity' (King & Newmann, 2000), asserts that schools that have generated both depth and integration across the five core elements in the RBF (detailed below) have been



This framework has been developed through a four-year strategic alliance between the University of Southern Queensland's Leadership Research Institute and Education Queensland. The University of Wisconsin-Madison's longitudinal studies of successful restructuring in American Schools (e.g. Newmann and Wehlage, 1995; King and Newmann, 2000) have been particularly helpful.

Figure 1: The Research-based Framework for Enhancing Outcomes in Schools

Source: LRI IDEAS Team February 2001 in Crowther et al (2001, p.2).

found to produce an enhanced sense of identity and greater capacity too pursue high expectations for student achievement (Crowther et al., 2001).

The *ideas* Process

Crowther et al. (2001) indicate that four major sources were used in the conceptualisation of the *ideas* process. These are: metastrategy (Limerick, Cunnington & Crowther, 1998), appreciative inquiry (Cooperrider & Whitney, 1996), action learning (Zuber-Skerritt, 1990; Kolb, 1984; Argyris & Schon, 1974) and organisational capacity building (King & Newmann, 2000; Newmann, King & Youngs, 2000b). The *ideas* process is underpinned by the concepts of professional learning community (Hord, 1997; Louis, Marks & Kruse, 1996; Kruse, Louis & Bryk, 1994) and shared responsibility for school renewal (Crowther, Hann & McMaster, 2001). Recognition is also given to the importance of teacher professional learning being contextualised, collaborative and ongoing – under the control of teachers but with external support (King & Newmann, 2001; King & Newmann, 2000; Newmann, King & Youngs, 2000a; Youngs & King, 2000). In summary, the *ideas* process is conceptualised around building organisational capacity (Crowther et al., 2002; Newmann, King & Youngs, 2000b; Scribner et al., 1999).

Parallel Leadership

The conceptualisation of parallel leadership derives from the work of Crowther and his associates (Andrews & Crowther, 2002; Crowther, Hann & McMaster, 2001; Crowther et al., 2000). Andrews and Crowther (2002) describe how the conceptualisation of teacher leadership and parallel leadership embedded within IDEAS arose from a five year research process which evolved in four distinct phases.

> Three concepts – teacher leadership, teacher-principal relationships and the role of the principal in nurturing teacher-leaders…provided the focus of the inquiry during different research phases (Andrews & Crowther, 2002, p.153).

The Teachers as Leaders Framework and the concept of parallelism were developed from this research, which also illuminated how parallelism worked to enhance school outcomes.

The following section provides a more detailed description of each of the major components of IDEAS. It draws on the documentation prepared by the IDEAS Core Team to assist school-based facilitators (Crowther et al., 2001; Crowther, 1999) and from Andrews and Lewis (2001).

1.5.1 The Research-based Framework

The Research-based Framework (RBF) provides a way of thinking about a school as an integrated entity. It presents an image of a successful school, an image that may be achieved by working towards the alignment of the key components: Strategic Foundations, Cohesive Community, Schoolwide Pedagogy, Infrastructural Design, and Professional Supports.

Alignment of the components of the RBF is achieved largely through the work of teachers taking on a pedagogical leadership role in the school. Through engagement in the *ideas* process, teachers envision a desired future for their school, what they particularly aspire to achieve. Teachers also develop agreement on what constitutes teaching excellence in their school. These pedagogical principles, which align with the vision, are known as the schoolwide pedagogy. The pedagogical leadership role taken on by the teachers is complimented by the strategic leadership role of the principal, in a relationship of parallel leadership. An important aspect of this administrator leadership role is facilitating the increasing alignment between different components of the RBF.

1.5.2 The *ideas* Process

The *ideas* process has five phases: initiating, discovering, envisioning, actioning and sustaining (Figure 2). It engages teachers in collaborative learning:

> …to enhance the school's approach to teaching and learning and to heighten the integration of teaching and learning with the school's vision, values and infrastructures (Crowther et al., 2001, p.29).

The *ideas* process enables organisational capacity to be built as teachers collaboratively engage in school improvement. Through their learning and the knowledge they create, they seek to strengthen the identity of the school, increase the capacity of the professional learning community and enhance student achievement.

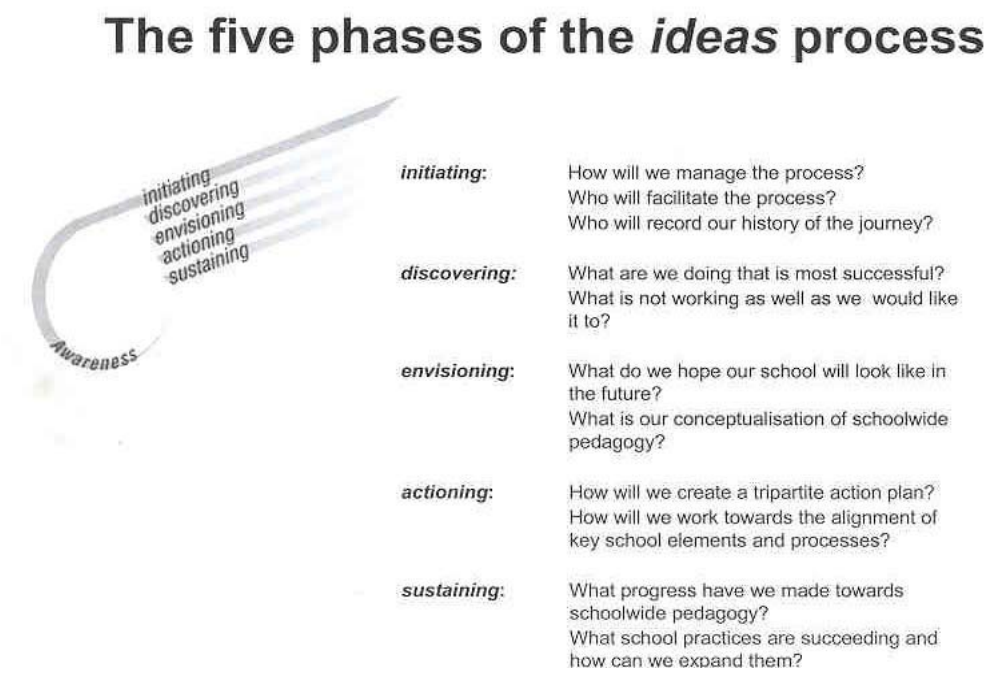


Figure 2: The IDEAS Implementation Process

Source: LRI IDEAS Team, February 2001

The five phases of IDEAS are linked in a conceptual sequence, however the movement through the process is not necessarily linear. The sequence may vary depending on the particular school circumstances. A brief description of the stages follows.

***Initiating**:* An IDEAS School Management Team is established. This team, generally consisting of classroom teachers, works with the school's facilitator (generally also from within the school) to manage IDEAS. Sometimes the principal is part of this team, often not. In the initiating phase, the facilitator and Management Team spend time raising the teachers' level of awareness about IDEAS.

***Discovering**:* Diagnostic Inventories are administered to teachers, parents and students (see Appendix 1 for a sample Teacher Inventory). These directly reflect the outcomes and contributory elements of the Research-based Framework, providing a snapshot of the school's successful practices and key challenges along with an indication of the current state of alignment between components within the school. Teachers interpret these data through discussion, generating shared meaning and establishing an understanding of the existing situation. It is this

learning which provides the basis for exploring the desired image of the school, and for considering pedagogical principles arising from successful practice.

***Envisioning**:* This phase is concerned with both vision and schoolwide pedagogy. The vision is developed though teachers identifying what the school aspires to be and imagining the collective ideal. It involves making explicit the essence of what the school wants to become. The values that give meaning to the ideal are explored and successful practices that reflect the vision are identified and discussed. A set of pedagogical principles is developed and gradually refined into a schoolwide pedagogy which provides a distinct pedagogical identity enhancing the culture of the school and guiding the work of teachers.

***Actioning**:* A mutualistic approach is taken in this planning and implementation phase. The teachers, under the guidance of the IDEAS Management Team, develop a pedagogical plan concerned with the trialing, implementation and refinement of the schoolwide pedagogy, as well as its evaluation and development over time. A management plan is developed by the administration to support and reflect the pedagogical plan, providing appropriate resourcing, keeping track of progress towards alignment, and raising community awareness of the vision and schoolwide pedagogy. Where appropriate, a governance plan is formulated by the school council (or equivalent body) to endorse and support the school vision and pedagogical plan. All the plans are consistent with the school vision, appropriate with the mandate of the group and aligned with each other.

Sustaining: This concerns taking stock, reflecting on and evaluating progress with the action plans and progress towards alignment. The Diagnostic Inventories may be readministered to provide new data for consideration. The major focus, however, is on enhancing, extending and enriching the knowledge that has been created. It involves a reassessment and further development of the vision and schoolwide pedagogy as teachers build on their collective learning and again look to the future to assess what they would now like to achieve and the implications of this for their pedagogy. In this phase, schools are engaging in processes "…of continuous refinement and the building of enhanced identity and capacity" (Crowther et al., 2001, p.43).

1.5.3 Parallel Leadership

IDEAS centres on the work of teachers. In the process of developing a distinctive school culture through the schoolwide pedagogy and vision, teacher leaders work in parallel with administrator leaders. Teachers develop their pedagogic leadership role while administrator leaders take on a strategic leadership role.

Parallelism, as used within IDEAS, has three distinct characteristics: mutualism, shared purpose and allowance for individual expression. These are incorporated into the following definition:

> Parallel leadership engages teacher-leaders and administrator-leaders in collaborative action, while at the same time encouraging the fulfilment of their individual capabilities, aspirations and responsibilities. It leads to strengthened alignment between the school's vision and the school's teaching and learning practices. It facilitates the development of professional learning community, culture building and schoolwide approaches to teaching and learning. It makes possible the enhancement of school identity, teachers' professional esteem, community support and students' achievements (Crowther, Hann and McMaster 2001 cited in Crowther 2001, p.52).

School-based leadership is an important factor in enhancing capacity to improve student outcomes (Crowther, Hann & McMaster, 2001; Crowther et al., 2001). The pedagogical leadership of teachers works in parallel with the strategic leadership of administrators. Through their engagement in the *ideas* process, teachers learn together in their professional community, developing an agreed schoolwide pedagogy and transposing this into practice (Figure 3). This strengthens the identity of the school, gives cohesion to the culture and enhances capacity to improve student outcomes.

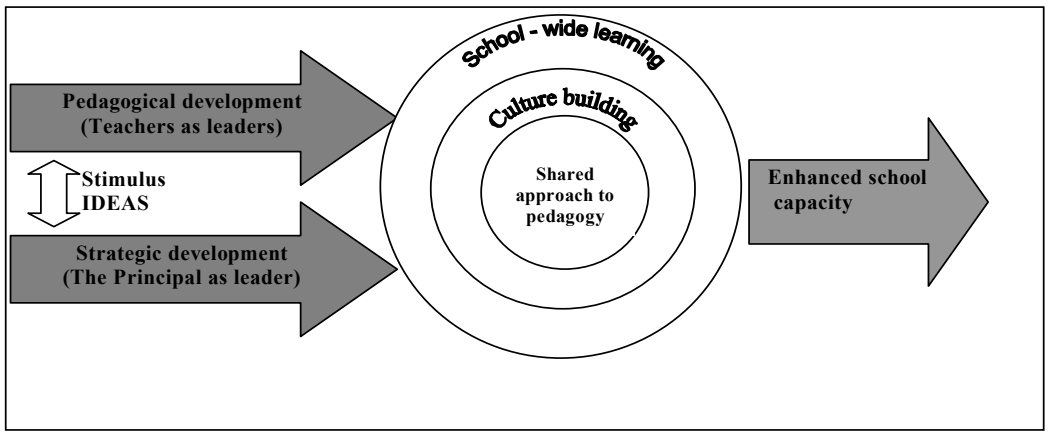


Figure 3: School-based Leadership and Enhanced School Innovation

Source: Crowther, Hann and McMaster, 2001, p.141

1.5.4 The Principles of IDEAS

IDEAS is based on five specific principles (Crowther, 2001, pp.3-4):

1. ***Teachers are the key:*** Central to IDEAS is the creation of a schoolwide pedagogy - a shared approach to teaching, learning and assessment. While administrators have an important role to play, it is the teachers who drive this process.

2. ***Professional learning is key to professional revitalisation:*** IDEAS enables successful classroom practices and the school's vision to be brought into alignment. This engages the professional learning community in the highest level of exploration and dialogue – placing professional learning at the centre of school renewal, and teachers as the heart of the process.

3. ***No blame:*** Blame is not attributed to individuals. Instead, IDEAS requires processes that will redress perceived deficits. These may be identified through successful practices.

4. ***Success breeds success:*** IDEAS is based on the premise that a professional community can achieve a great deal when positives are emphasised rather than deficits.

5. ***Alignment of school processes is a collective school responsibility***: It is a collective responsibility for individual schools to create a distinctive identity through aligning school vision, community cohesion, infrastructure, classroom practices and professional development.

External facilitation support is also available to IDEAS schools. Members of the IDEAS Core Team (university based) and more recently, members of the IDEAS Support Team (experienced IDEAS facilitators) are available to visit schools at key junctures in the process.

1.5.5 IDEAS as a Change Process

It is recognised that other processes of whole-school renewal could have provided the environment for the professional learning community of the school to create and utilise contextualised professional knowledge. IDEAS was used as the vehicle

for this research because its model of school operation, captured in the Research-based Framework, centres on the work of teachers. The *ideas* process facilitates contextualised knowledge work as teachers are engaged in developing and implementing a shared vision and schoolwide pedagogy. While other school renewal processes may have provided a basis for this research, IDEAS has proved particularly fertile ground for study of collegially-based knowledge creation processes.

1.6 Locating the Researcher in the Inquiry

My work as a doctoral researcher has been extremely complicated by my location in a number of enabling but also potentially conflicting research contexts. A brief explanation of this complexity follows.

This research grew out of the IDEAS Project which I have had the privilege to be involved with since 1999. As a member of the USQ IDEAS Core Team, I have been ideally placed to observe the growth and development of the project. Membership of the IDEAS Team assisted my research in a number of ways. The significant goodwill between schools and the Director of the USQ Leadership Research Institute was of great advantage to me as a newcomer to Queensland. My participation in regular IDEAS Team meetings, school visits, facilitator training days and the preparation of the *IDEAS Facilitation* Folder (Crowther et al., 2001) has also provided an invaluable background to my research. IDEAS Team membership did not create any real tensions for me as a researcher, though it did give my presence in the schools an extra dimension. In general, I was able to move from one role to another where this was required, but stayed in the role of student researcher where possible as my primary purpose in those schools was data collection and observation. My particular role and participation varied from school to school. This is explored in more detail in Chapter 3.

As indicated previously, IDEAS was developed by the USQ Leadership Research Institute in partnership with Education Queensland. Complementing the IDEAS Project has been an ARC-SPIRT[2] Grant project directed by Professor Crowther

[2] ARC stands for Australian Research Council and SPIRT for Strategic Partnerships with Industry Research and Training Scheme

and Dr Andrews in conjunction with Professor Peter Cuttance (University of Melbourne) and Professor Ronel Erwee (USQ). This research team is working with industry partner, Education Queensland, to inquire into the impact of whole-school reform processes on school outcomes. The ARC-SPIRT Grant project (2001-2003) trials a conceptual framework (see Figure 3) developed in the 1998-1999 'Innovation and Best Practices Project' (IBPP), in a number of Queensland State Schools. As a process of whole-school reform, IDEAS is being used at the vehicle for this inquiry. The IBP Project, led by Professor Cuttance, was carried out by researchers from a consortium of Australian universities (Sydney, USQ, Melbourne and Edith Cowen).

My involvement in research in which my supervisors have a vested research interest raises the question of whether my integrity as an independent researcher may be compromised. This has partially been guarded against by the sensitivity of those involved, and the care taken by my supervisors to avoid this potential conflict of interests. In addition, I have maintained separation from the ARC-SPIRT Grant research project. Finally, I have gone to major lengths to validate my own data. The existence of the ARC-SPIRT Grant project has the potential, over time, to contribute to the validation, or otherwise, of the outcomes of this research. However, this inquiry also stands alone, its validity resting on the features outlined in Chapter 3.

1.7 Summary of the Chapters

The thesis has been structured into six chapters.

Chapter 1 introduces the study by providing an overview which leads into consideration of the focus of the inquiry. The objectives are delineated and the research problem identified. The research context briefly introduces the three case study schools all engaged in a process of whole-school renewal. The major challenges for Australian schools are considered against a background of globalisation, then IDEAS – the process of whole-school renewal – is described. The chapter concludes with a brief overview of the researcher's location in the inquiry.

Chapter 2 provides a review of the literature that has informed this study. It briefly considers how the changing nature of society impacts on the work of teachers and outlines what is understood by professional learning community before going on to consider in some detail the nature of knowledge and of knowledge creation. Some consideration is also given to aspects of teacher knowledge. Discussion of individual and organisational learning follows. Consideration is given to different forms and processes of cognition: individual and social, situated and distributed, and relating to culture and cultural processes. This leads into discussion of the factors both enhancing and constraining knowledge creation. Particular note is made of the impact of efficacy and emotion in organisations on these processes. Finally, to conclude the chapter, brief mention is made of orientations to school renewal and the particular orientation of IDEAS.

Chapter 3 describes the research orientation of this inquiry and identifies the focus of the research. Each of the case study schools is described and an explanation provided of how the sample was selected. Information is given on the collection of the data, its transcription, and analysis. A rationale is provided for treating each school as an individual case up until the final stage of analysis, when some tentative generalisation is formulated. A brief account of my presence in the research and in the text is offered. Consideration is given to how the inquiry meets the criteria for adequacy and ethical clearance considerations are noted.

Chapter 4 tells the stories of the three schools. These stories are firmly grounded in the interview data, supplemented by my own observation and experiences as a participant observer. While each of these stories has been carefully constructed from the data, seeking validity from verisimilitude, each represents only part of the larger multi-layered narrative of the school. The perspectives explored are those of the teachers, their daily lives in the school, against the background of a whole-school renewal process. These stories are told to provide a basis for understanding the processes of knowledge creation in each context. Care is taken to look at each of the cases individually so that the contexts are clearly delineated and differentiated.

Chapter 5 draws on the contextualised stories of each of the schools to look more specifically at the knowledge creation processes. The chapter begins with consideration of the nature of the knowledge created in each school. This is followed by a detailed exploration and analysis of how knowledge creation may be understood in each of the schools and my own emerging interpretation of the knowledge creation processes at work in each of the three cases.

Chapter 6 provides the final stage of analysis in this inquiry, drawing the three cases together to explore what light they collectively shed on the processes of school-based knowledge creation. The structure for comparison is provided by the research questions. Cross-case comparisons are made to explore the processes of knowledge creation; the types of individual and organisational learning that support whole-school renewal and factors influencing knowledge creation. These questions are addressed in turn, followed by consideration of how the findings of this inquiry relate to and go beyond the literature, the importance of the research and how it may be further developed. A final reflection on the significance of this inquiry is offered.

CHAPTER 2: A Review of the Literature

2.1 Overview

The review of the literature is structured into a series of sections. Initially, consideration is given to how changes in society are bringing greater complexity to the work of teachers. Attention then turns to the systemic response of restructuring and the impact of restructuring on student outcomes. The existence of different types of teacher collaborative activity is noted, leading into more specific consideration of the notion of professional learning community.

A section concerning the nature of knowledge follows. This is intended to provide the foundation for more detailed consideration of knowledge creation. Taking an historical perspective, understandings of the nature of knowledge are explored, leading into an examination of the social construction of knowledge and of meaning.

The three sections which then follow constitute the core of this review of the literature. Structured to broadly correspond with the research questions they explore:

- the processes of knowledge creation;
- individual and organisational learning;
- factors influencing the knowledge creation process.

To locate the study more specifically within a school context, a section drawing out relevant aspects of teacher knowledge has been included. This is linked to, and follows, the section exploring the processes of knowledge creation. To complete this literature review, a further section dealing with emotions in organisations has been added in recognition of the highly affective nature of teacher engagement in knowledge creation. To conclude the chapter, the importance of whole-school renewal is re-emphasised and the particular orientation of IDEAS as a school renewal process is noted.

2.2 The Changing Society is Changing the Work of Teachers

The literature clearly supports the assertion that the changing nature of society is challenging schools and has significant implications for the work of teachers (Fullan, 1991, 1999; Hargreaves & Fullan, 1998; Smyth, 1998; Levin & Riffel, 1997; Hargreaves, 1994; 1997). Darling-Hammond indicates the enormity of the task faced by teachers when she says:

> Public schools are being asked to educate the most pluralistic group of students in history for more challenging learning than ever before. Teachers and other school leaders are expected to learn to teach in much more sophisticated ways that reach students who approach learning from diverse vantage points while restructuring schools designed many decades ago for a much different mission in a much simpler time (Darling-Hammond cited in Hargreaves & Fullan, 1998, p.iv).

While Darling-Hammond was talking of an American context, the statement may equally be applied to Australian schools. The ability to meet such challenges implies a fundamental change in the work of teachers, the way they relate to each other and learn together. This is no easy matter. The changing environment is making the role of the teacher more complex and demanding – it is redefining what it means to be a successful teacher. Also, in Australia, teachers' work has underdone a process of redefinition in the context of school system restructuring, itself a response to changing conditions. It is clear that the case study schools in this inquiry, all located in Queensland, are facing challenges arising from a rapidly changing environment. For public schools, this is evidenced by the 2010 document (Queensland State Education, 1999) which explores how schools are to meet the challenge of moving from the industrial age into the information age.

2.2.1 School System Restructuring

In Australia, as in a number of other Western countries, school systems have undergone significant restructuring during the last fifteen years. The restructuring of public education formed part of Australia's repositioning in response to the wider global restructuring of capitalism (Smyth, 1995). It was designed to increase Australian competitiveness and support the shift from an industrially-dependent economy to a post-industrial one (Beare, 1990). While the details

varied from state to state, and within states as governments changed, the general emphasis in Australian public school systems has been on reducing the central bureaucracy and, within broad system policy parameters, allowing more decision-making at the local school level (Sharpe, 1996). Hargreaves (1994) notes that while many meanings are attached to restructuring, the principle of collaboration is common to almost all of them. Although Hargreaves is writing in an American context, in broad terms, the same may be said of restructuring within Australia (Sharpe, 1996).

The impact of restructuring on teachers' work is too broad and complex to address here in any detail. A number of general points need to be made, however, so that a distinction may be drawn between 'professional learning community' and other forms of teacher collaboration. Within the rationale of restructuring, schools were seen as having a significant part to play in making Australia a 'clever country' and therefore more competitive in a changing world (Smyth, 1995). School system restructuring, which placed more responsibility for decision making at the local school level, was viewed as a way to transform school organisation and culture, making schools more responsive and more able to adapt to changing conditions (Woods et al., 1997). An important aspect of the success of this rested on teachers taking on a broader role in the whole-school context. This generally required working collaboratively and being involved in school-based decision making (Mayer et al., 1997). Here, a very important distinction needs to be made. As Little points out, "The term collegiate has remained conceptually amorphous and ideologically sanguine…imbued (by its advocates) with a sense of virtue" (Little, 1990, p.509). For Hargreaves, the term collegiality is vague and open to a range of interpretations. It is, "…mostly symbolic, motivating rhetorics in a mythical discourse of change and improvement" (Hargreaves, 1994, p.164). The assertion, therefore, that collegiality may appear in many guises – and to different effect – allows distinctions to be made between collaboration introduced because of policy requirements or to assist the school to meet its strategic planning goals, and collaboration driven by educational purpose, tied to practice and arising out of teacher choice. In the former, collaborative working relationships may be 'contrived' (Hargreaves, 1994) by the school administration, while the latter is more consistent with the concept of professional

community. The important point here is that there is a significant difference between teachers choosing to collaborate in order to achieve shared goals and being required to do so (Little & McLaughlin, 1993). In the redefinition of teachers' work, therefore, it is important to consider the type of collaboration, its origin and motivating force.

This is significant when considering teacher engagement with IDEAS. Unlike many system-wide initiatives, the decision to participate is taken at a school level. Control of the *ideas* process rests largely with classroom teachers. The particular path through the process is determined by the circumstances of the school and the timeline is determined by the IDEAS Management Team. Teacher collaboration within IDEAS is not imposed from outside the school and, being firmly grounded in pedagogy, is tied to practice not administrative concerns. IDEAS motivates educationally-driven collaboration because it builds on successful classroom practice and engages teachers in professional conversations about their work (Crowther et al., 2001). It involves ways of working consistent with the types of collaboration that characterise professional learning communities. This is discussed in more detail below.

2.2.2 The Effect of Restructuring on Student Outcomes

While devolution, site-based management or other restructuring efforts can be assumed to have an effect on school administration, it cannot be assumed that teaching and learning will be enhanced as a result. A number of studies suggest that education decentralisation has little or no value when conceived of as an end in itself (e.g. Brandt, 1995; Murphy & Beck, 1995; Newmann & Wehlage, 1995). According to Odden and Busch (1998), there is a growing body of research which suggests that school-based management can work very effectively provided that a series of organisational conditions are in place at school level and the core focus is improvement in student learning (Joyce, Calhoun & Hopkins, 1999; Newmann, 1996). Where restructuring goes beyond managerialism and is used to develop a 'professional learning community' then teacher practice may be changed in ways that enhance student learning (Hord, 1997; Louis, Marks & Kruse, 1996; Bryk, Camburn & Louis, 1996; Joyce & Calhoun, 1995; Kruse, Louis & Bryk, 1994). It is the knowledge created by teachers engaged in collaborative whole-school

renewal processes that forms the focus of this study. Restructuring of itself does not open the way for such organisational learning, though it does have implications for the work of teachers. Depending on the prevailing conditions in the school, restructuring may open up avenues of teacher collaboration which were not possible under the more traditional bureaucratic arrangements. It opens up the possibility of knowledge creation within the professional community of the school.

Before considering the nature of knowledge and knowledge creation processes in more detail, it is appropriate to consider what is meant by professional learning community. School system restructuring and reorientation created the potential for teachers to become more involved in decision making and operate on a more collaborative, collegial basis (Mayer et al., 1997). The increasing involvement of teachers in broader school issues represents a different focus for teachers, one beyond the classroom – within the professional community of the school.

2.3 Professional Learning Community

In 1975, Lortie provided an enduring image of an isolationist professional culture when he talked about the 'egg-crate' notion of one teacher in one classroom. The relationships implicit in professional learning communities stand in somewhat stark contrast, with teachers continually working together and believing in the possibility of whole-school change (Smyth, 1998). There is a good deal of agreement in the literature about the nature of successful professional learning communities. Hord (1997) lists their main characteristics as shared and supportive leadership, shared vision, shared personal practice and the application of collective learning to improve student achievement. Similarly, Kruse, Louis and Bryk (1994) and Bryk, Camburn and Louis (1996) identify the elements of professional learning community as reflective dialogue, deprivatisation of practice, collective focus on student learning, collaboration and shared norms and values. Newmann (1994) talks of teachers taking collective responsibility for achieving shared educational purpose and collaborating with each other to achieve that purpose.

For all this to occur teachers need to have time, access to each other, good communication structures and a degree of autonomy (McLaughlin, 1997; Kruse, Louis & Bryk, 1994). The literature suggests, however, that putting structural factors into place is not enough in itself – the school has to have the social and human factors that support them (Bryk, Camburn & Louis, 1996; Kruse, Louis & Bryk, 1994). Hargreaves (1994) stresses the importance of social climate if collaboration is to be sustained. Huberman (1993) adds that the absence of a positive and supportive social climate can lead to the breakdown of collaborative effort or foster the type of collaboration which has little bearing on what the teacher does in the classroom. The presence of characteristics such as trust, respect and openness to improvement are thus key characteristics of professional learning communities. Change is therefore more likely to occur in schools where the structures are in place for the learning community to operate and there is a positive social climate for teachers to share their professional knowledge.

Craig (1995b) describes the importance of knowledge communities where experiences may be shared in an atmosphere of trust and new knowledge generated as a result of the linkage between individual and communal ways of knowing. Such knowledge is enriched by the range of perspectives being shared. This is very different to the teacher-in-classrooms scenario where teachers may have little opportunity to talk about students, school and teaching and where, "…everyone in the organization is likely to be operating under a different set of assumptions, precepts and images" (Pellicer & Anderson, 1995, p.11). It is not surprising, therefore, that under such circumstances "meaningful, sustained improvements in organizational practices have been rare" (p.12). As Smyth comments:

> Given the increasing complexity, uncertainty and unpredictability, it is imperative that learning be of a kind in which we learn with one another. Trying to survive as islands in this sea of complexity is dinosaur thinking (Smyth, 1998, p.8).

The existence of a strong professional community in a school does necessarily infer that teachers are critically reflective and questioning of practice, however. King (2001) cautions that a professional community with highly explicit norms

may have strict boundaries that prevent the questioning of current practice, serving instead to exclude and silence.

In contrast to this 'dinosaur thinking', the 'egg-crate' notion and enforced homogeneity:

> Effective responses to the challenges of contemporary classrooms require a spirited, reflective professional community of teachers – a workplace setting that allows examination of assumptions about practice, focuses collective expertise on solutions based on classroom realities, and supports efforts to change and grow professionally (McLaughlin, 1993, p.98).

This description is particularly pertinent in relation to this inquiry. Through their participation in IDEAS, teachers are collaboratively engaging in the professional community of the school. They are engaging in a process which purportedly matches McLaughlin's description of effective responses to the challenges of contemporary classrooms. Working with the *ideas* process, teachers identify their shared educational purpose and have a framework to guide their efforts. Successful practices and assumptions underpinning pedagogical practices are critically explored as teachers seek to reimage their work (Crowther et al., 2001).

The next section looks more specifically at knowledge – considering the nature of knowledge and knowledge creation processes. This leads into consideration of teacher knowledge.

2.4 The Nature of Knowledge

> A postmodern movement from knowledge as corresponding to an objective reality to knowledge as a social construction of reality involves a change of emphasis from an observation of, to a conversation and interaction with, a social world (Kvale, 1996, p.268).

This inquiry uses a process of whole-school renewal as a vehicle for investigating how professional knowledge may be generated in schools through the actions of the professional learning community. It asserts that contextualised professional knowledge may be created by teachers, shared across the school and implemented to enhance school outcomes. Before exploring these processes in schools, it is

necessary to consider how the production, transmission and use of knowledge has been understood in the past, along with current understandings. This leads into a more detailed exploration of knowledge creation processes.

2.4.1 Knowledge Production

For the purposes of this study, the account of how knowledge may be reliably produced begins in seventeenth century Europe. The rise of Puritanism in Britain had generated an ethos characterised by utility, rationality, empiricism, and individualism which was ideally suited for the development of science and the scientific method (Potter, 1996). These values were the foundations of the scientific imperatives that determined how reliable knowledge could be produced. They were highly influential as, by the eighteenth century, the terms science and knowledge were often being used interchangeably (Gibbons et al., 1994). The scientific method of producing knowledge grew particularly out of the notion of empiricism – that is, the belief that sensory experience is the sole source and test of knowledge (http://www.yourdictionary.com/diction5a.html#sociology). It was believed that an understanding of the laws of nature could be derived from careful observation and categorisation of phenomena and that through observation, hypothesis and experimentation, increasingly accurate representations of the world could be constructed (Hooker, 1999; Wolfs, 1996). Knowledge therefore related to increasing understanding of objective reality. The closer that scientists could get to understanding the natural laws that governed the world, the better they would be able to predict and control it (Trochim, 2001). The idea that knowledge was based on objective observation was built up over a long period of time (Potter, 1996). This form of knowledge production implied that knowledge was the discovery of an external, independently existing reality and the laws that governed the natural order of things.

2.4.2 Scientific Knowledge and Social Science

The scientific method of thinking was not confined to trying to understand the laws governing the natural world. In the nineteenth century, August Compte founded a philosophical system of thought which he called Positivism and sought to apply the scientific methods of observation and experimentation to ‘the science

of society' (Landry, 1999). Positivism was based on the belief that social life could be understood and analysed in the same way as the natural world, and that social phenomena could be empirically observed, tested and measured (Bilton et al., 1996; Rubin & Rubin, 1995). In positivism, science remained the only source of reliable knowledge and the scientific method was used to develop understanding of the universal laws of social development. Its application assumed that human and social behaviour could be understood scientifically - with objectivity and impartiality (Drislane & Parkinson, n.d.).

2.4.3 Challenges to Positivism

A broad fronted challenge to positivism began in the second half of the nineteenth century, as a reaction to:

> …science's mechanistic and reductionist view of nature which …excludes notions of choice, freedom, individuality and moral responsibility (Cohen, Manion & Morrison, 2000, p.17).

In the twentieth century, criticism of positivism continued to grow with arguments that it was unable to take the immense complexity of human nature into account. It was dehumanising in its desire to quantify and in its objectification of people which disregarded their inner lives, their subjective realities and the choices they made (Cohen, Manion & Morrison, 2000). These considerations fuelled the debate about the usefulness of observation as a foundation for scientific knowledge. Then, beginning in the 1960s, the belief that knowledge was being created through the scientific method in the manner described by the positivists was severely shaken (Rizvi, 1991) by what Pels and Nencel (1991) describe as "the Kuhnian break". Kuhn challenged the firmly held beliefs that science was both objective and value free by introducing the notion of paradigm to describe both the scientific community that shared particular beliefs and the scientific beliefs they shared (1996). Kuhn recognised that in their various communities of practice, scientists both produced and validated knowledge. The knowledge which fitted with the existing web of belief (their paradigm) was more likely to be accepted as true, while their cultural expectations played a role in the categorisation of what was observed (Potter, 1996).

> Suddenly, scientific procedure seemed to lose its foundations that had rested on systems of logical reasoning and the application of correct methodologies of empirical research. Science was no longer a unilinear process of accumulating knowledge (Pels & Nencel, 1991, p.5).

Another highly significant challenge to the supposed neutrality of positivism came from the critical theorists of the Frankfurt School (Pels & Nencel, 1991). Habermas argued that positivism was scientism because of its imperialistic stance in collapsing all knowledge into the single category of natural scientific knowledge (Rizvi, 1991). In this view, by being equated with all knowledge, scientific knowledge had taken on an unassailable position as the only epistemology of the West (Cohen, Manion & Morrison, 2000). Clearly, forms of knowledge production were required that were able to take values, beliefs, perspectives, interpretations of events, intentions and other aspects of human behaviour into account.

These oppositional forces opened the way for a shift from the positivist philosophy of social science towards philosophical lines of thought closer to the humanities. In recent decades there has been recognition that knowledge can be created through, for example, the postmodern social construction of reality, phenomenological descriptions of consciousness, and the situating of human activity in social and political historical contexts (Kvale, 1996). Knowledge no longer has to be produced through detached observation and the processes of the scientific method. Recognition is now being given to the *ways* in which knowledge may be legitimately produced, through the interaction of people in their real life contexts and with the complexity of the real world being taken into account (Rubin & Rubin, 1995).

In the second half of the twentieth century, some scientists began to adopt a post-positivist stance by responding to the most problematic criticisms of positivism (Guba & Lincoln, 1998). Some of the basic tenets of positivism were rejected in recognition of the fallibility of observation and the influence of subjectivity in the quest for objectivity (Trochim, 2001). While still assuming an objective reality, this approach addressed the multidimensional complexity of social theory by situating empirical enquiry within a broader interpretive framework (Fischer, 1998). Recognising the value of science and the limitations of positivism, Evers

and Lakomski (1991, 1996) have sought to develop a new post-positivist science which unifies social science and natural science into one theoretical framework. They have developed a post-positivistic science of educational administration justified by what they term a 'coherentist' epistemology, able to take values and subjectivity into account and drawing on natural science (Evers & Lakomski, 1996).

According to Cohen, Manion and Morrison, the alternatives to positivistic social science take varying epistemological stands, but all agree on several significant points:

> …that the social world can only be understood from the standpoint of the individuals who are part of the ongoing action to be investigated… (and) that understanding of individuals' interpretations of the world around them has to come from inside, not outside (2000, pp. 19-20).

What is being described is a conception of social reality which recognises that people construct the world in different ways and have different interpretations of events. This carries within it the recognition that knowledge can be subjective, based on experience and insight, and personal in nature.

2.4.4 The Nature of Understanding

According to Semin and Gergen (1990), it was traditionally assumed that the conceptual system of the individual was a reflection of and driven by an objective external reality. This was challenged, over time, on the basis that people's inherent capacity to store, organise and selectively retrieve information suggested the opposite was happening, that the conceptual system was determining what was being taken as real. What the individual took as knowledge, was determined by their "cognitive predilections" rather than by the environment (Semin & Gergen, 1990). As this still did not explain how people initially built up their beliefs and their everyday understandings, the account was further developed to recognise that individuals internalised publicly shared discourses to orientate themselves in their world. In their seminal work, *The Social Construction of Reality,* Berger and Luckmann (1966) presented a sustained and systematic argument against the view that the world we live in is based on an objective

reality, arguing that reality is a social construction and that thought is influenced by social context.

A conceptualisation of understanding which began with the socially disembodied individual and the mental world/real world dualism had therefore moved on. It was replaced by a view that the everyday understanding of the individual is situated within their lived experience, in their particular social and cultural setting. This conceptualisation was taken further by social constructionists, against a backdrop of postmodernism and the huge impact of rapidly developing communication technologies on everyday life. Social constructionism is a complex area encompassing a range of positions. Overviews of the main theorists and their theories may be found in Stam (2001, pp.291-298) and Burr (1995).

Gergen (1995, unpaginated), perhaps the most prominent social construction theorist, talks of "the technologies of saturation" which pervade everyday life and bring people into contact with "an enormously expanded domain of others". Exposure to such a huge variety of conflicting values, opinions and sensibilities, creates the conditions where people experience multiple realities, become increasing suspicious of "authoritative knowledge" and more sensitive to knowledge emerging from different social contexts (Gergen, 1995). This serves to support and reinforce the social constructionist account of knowledge creation.

The postmodernist or, more specifically, poststructuralist, view of language takes this further, asserting that meanings expressed in language are temporary, able to be questioned and contested. Through language, people describe and construct versions of their world, building up meaning through their social interaction. Reality is constituted as people talk, write and argue about it (Potter, 1996).

> The way people think, the very categories and concepts that provide a framework of meaning for them, are provided by the language that they use…when people talk to each other the world gets constructed (Burr, 1995, p.7).

For Gergen (1995), knowledge is created and meaning generated within relationships and though ongoing joint-action. Meaning is specific to and rooted in the context where it was developed and can never be competed or finalised.

Meaning will change with new people entering the discussion bringing interpretations based on previous experiences in other contexts.

These accounts clearly indicate that social processes are central to knowledge production and that knowledge is created through the interaction of people. For Burr (1995) knowledge is not something a person has but something that people do together. Thus, social constructionism is about people constructing shared versions of knowledge and negotiating meaning through their conversations and daily interactions. This is a key point in this inquiry which has as its focus the creation of contextualised knowledge by groups of teachers. This inquiry investigates how teachers in their real-life school context share their values beliefs and professional understandings to create professional knowledge to guide their practice. However, as Burr (1995) points out, meanings may be contested. Teachers within the groups may be entering the school renewal processes from different discursive positions. While this study is concerned with the social construction of professional knowledge – it also has to recognise that meanings may be contested within each group.

2.4.5 Two Modes of Knowledge

Gibbons et al. (1994), conceptualise changes to the production, transmission and use of knowledge in a slightly different way. They make a useful distinction between two epistemologically distinct types of knowledge which they refer to as Mode 1 and Mode 2. The first describes knowledge produced in compliance with "sound scientific principles". It is discipline based, generally with a theoretical core which can subsequently be translated into application. The second, in contrast, is trans-disciplinary and produced in the context of its application (Gibbons, 1994). While Mode 1 knowledge is often produced by individuals, frequently in universities or traditional research centres, Mode 2 knowledge is often produced in diverse sites and by heterogeneous teams (Heath, 2001). The production of Mode 1 knowledge generally relates to problems set and solved by a specific academic community while Mode 2 knowledge is typically created to solve problems arising from the specific context where it is to be used (Day, 2000). Its worth is judged through contextualised processes and its situated nature

allows continued development through the ongoing interplay between the practice and theory (Gibbons et al., 1994).

> Knowledge can no longer be regarded as discrete and coherent, its production defined by clear rules and governed by settled routines. Instead it becomes a mixture of theory and practice, abstractions and aggregation, ideas and data (Gibbons et al., 1994, p.81).

The knowledge creation at the focus of this study displays many of the characteristics of Mode 2 knowledge. It concerns the kind of purposefully constructed contextualised professional knowledge required by teachers to meet challenges arising from a rapidly changing world. This suggests a significant shift from viewing schools as sites of knowledge transmission (to meet the needs of an industrial age) towards the postmodern view of schools as legitimate sites of knowledge production (more in keeping with the demands of the information age

The foundations have now been laid for more detailed consideration for the review of the literature relating to the core of this inquiry. The following section explores the knowledge creation process in detail. Consideration is then given to individual and organisational learning and to the factors influencing the knowledge creation process.

2.5 Knowledge Creation

> Knowledge is one of those concepts that is extremely meaningful, positive, promising, and hard to pin down (von Krogh, Ichijo & Nonaka, 2000, p.5).

2.5.1 A Definition

Nonaka and Takeuchi (1995, p.3) define organisational knowledge creation as "the capability of a company as a whole to create new knowledge, disseminate it through the organisation, and embody it in products, services and systems". This recognises that, once created within its context, new knowledge needs to be spread across the organisation and linked to practice. Thus knowledge creation is very different from knowledge management which may focus on trying to capture, record and store the explicit knowledge of an organisation.

Nonaka and Takeuchi (1995, p.43) note Drucker's (1993) observation that every organisation in the knowledge society is challenged "to systematically manage its self-transformation" – a process involving continuous improvement, innovation and building on existing successes. They further note the organisational learning theorists' emphasis on the need for organisations to learn continuously – pointing out that concepts like double-loop learning (Argyris & Schon, 1996), generative learning, mental models, team learning and shared vision (Senge, 1992) fit well with their view of knowledge creation.

2.5.2 Two Perspectives on Knowledge

As already noted, knowledge may be considered from different perspectives. From one perspective, knowledge is believed to represent an independently existing world – it is explicit, codifiable and can be passed on to others (von Krogh, 1998). From another perspective, knowledge is not universal and cognition is viewed as an act of construction or creation. From this perspective, knowledge is tied to effective action and may be explicit or tacit (von Krogh, Ichijo & Nonaka, 2000; von Krogh, 1998).

In the knowledge creation research, the importance of tacit knowledge, embedded in the social values and beliefs of individuals, is widely recognised. It follows that knowledge creation is a social process, embedded in a particular set of relationships among individuals, teams and organisations (Nonaka & Nishiguchi, 2001). The perspective that knowledge, viewed as justified true belief, can be created through group interaction has profound implications. It implies that a justified true belief is based on an individual's unique worldview and experience, and that knowledge is a contextualised social construction. The creation of new knowledge is not a question of compiling facts, but is "…a uniquely human process" involving feelings and belief systems (von Krogh, Ichijo & Nonaka, 2000, p.6). From this perspective, knowledge is about beliefs, commitment, meaning and action. It is both context specific and relational (Nonaka & Takeuchi, 1995). This is not knowledge in any absolute or static sense – but a contextualised and "dynamic human process of justifying personal belief toward the truth" (Nonaka, Konno & Toyama, 2001, p.14), anchored in beliefs and commitment, and essentially related to action (Nonaka & Takeuchi, 1995).

2.5.3 Knowledge: Variously Described

Knowledge is a broad term with a range of meanings, variously described. Skyrme (1999) talks of personal, shared, proprietary, and public knowledge while Leonard-Barton (1995) identifies public, industry-specific and 'in-house' knowledge, strongly emphasising the importance of the knowledge grown within the organisation. Dixon (2000) describes the knowledge linked to practice in a specific organisational setting as 'common knowledge'. This is knowledge that needs to be reinvented, updated, and shared across the organisation in times of change (Dixon, 2000). Nichols (2000) identifies 'know about', 'know how' and knowledge 'captured' in codified facts. Nonaka, Konno and Toyama (2001) distinguish between knowledge and information, seeing knowledge as anchored in the beliefs and commitments of the individual. Davenport and Prusak (1998) talk about data, information and knowledge. Data and information fit with what is codifiable, while knowledge is something broader, deeper and richer:

> Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information (Davenport & Prusak, 1998, p.5).

The most significant types of knowledge described in the knowledge creation literature, however, are tacit knowledge and explicit knowledge.

Many knowledge creation theorists (e.g. Nonaka, Konno & Toyama, 2001; Nichols, 2000; Takeuchi, 1998; Nonaka & Takeuchi, 1995; Nonaka, 1991) treat tacit and explicit knowledge as two separate categories. At the same time, these two forms of knowledge are seen as complementary – interacting and engaging with each other (Takeuchi, 1998). Nonaka and Takeuchi's (1995) model of knowledge creation is based on the assumption that knowledge is created and expanded through social interaction between tacit knowledge and explicit knowledge (Takeuchi, 1998). Both are essential to knowledge creation as "they interact and change into each other in the creative activities of human beings" (Nonaka, Konno & Toyama, 2001, p.14).

Not all theorists accept that tacit knowledge can or needs to be changed into explicit knowledge (Leonard & Sensiper, 1998). Cook and Brown (1999), for example, reject the notion that tacit knowledge has to be made explicit in order to

be understood or useful in practice, arguing instead that individual, group, tacit and explicit are four distinct and equal forms of knowledge - and in addition there is the 'knowing' that is achieved through action.

Insights are also provided by the connectionist perspective which provides a way of understanding both explicit and tacit forms of knowledge as neuronal patterns, removing the distinction between them (Lakomski, 2000). Based on an image of the brain as many interconnected units – activating or inhibiting each other by energy transmitted over their connections (Bereiter, 2000) – connectionist theory treats knowledge as the pattern of connections between units and learning as the strengthening or weakening of these connections (Greeno, Collins & Resnick, 1996). For the purposes of exploring knowledge creation theory, however, the following section does distinguish between explicit knowledge and tacit knowledge.

2.5.4 Explicit Knowledge and Tacit Knowledge

Explicit knowledge is codifiable. It can be articulated, recorded and transmitted across individuals (Takeuchi, 1998). In contrast, tacit knowledge is hard to formalise and difficult to share with others (Gordon, 2000; Takeuchi, 1998). It is personal knowledge embedded in experience and involving tangible factors such as values and personal perspectives (Nonaka & Takeuchi, 1995). Tacit knowledge has two aspects: the kind of skill, intuitions and insights often described as ‘know-how’ and a cognitive dimension (Nonaka & Takeuchi, 1995; Nonaka, Konno & Toyama, 2001; Takeuchi, 1998).

> (The cognitive dimension) consists of beliefs, ideals, values, schemata, and mental models which are deeply ingrained in us and which we often take for granted. While difficult to articulate, this cognitive dimension of tacit knowledge shapes the way we perceive the world (Nonaka & Konno, 1998, p.42).

Tacit knowledge, described by Polanyi (1997), initially made little headway in relation to explicit knowledge. For several decades, the ‘symbol processing’ view of cognition was privileged over tacit forms of knowing (Lakomski, 2000). This has been challenged in recent years by the proponents of distributed cognition (Bredo, 1994), and by knowledge creation theorists (e.g. von Krogh, Ichijo & Nonaka, 2000; von Krogh, Nonaka & Nishiguchi, 2000; Nonaka & Takeuchi,

1995; Nonaka, 1991). Both groups have recognised the importance of tacit knowledge and incorporated both tacit and explicit knowledge in their theorising. The view of knowledge as something 'possessed' by the individual has been challenged in favour of a social constructionist approach. Where cognition is seen as situated – the individual, the activities and the environment are viewed as part of a mutually constructed whole (Bredo, 1994).

According to Dixon (2000), problems can arise in organisations where knowledge is equated with explicit knowledge and seen as something which can be documented and stored in a central location. She advises that knowledge is better seen as something dynamic and changing – more like water flowing across the organisation than something to be stored in a warehouse (Dixon, 2000). Organisations may underestimate the importance of organisation specific experience (Sveiby & Lloyd, 1987) tending instead to focus on codifiable explicit knowledge, ignoring the crucial importance of tacit knowledge, which is not easily visible or expressible (Takeuchi, 1998; Nonaka & Takeuchi, 1995). However, once the importance of the cognitive dimension of tacit knowledge is recognised, reaching agreement on what the organisation is seeking to achieve, the kind of world the organisational members want to live in, and how this reality might be achieved become more important than processing objective information (Takeuchi, 1998). Drawing on their mental models to help them perceive and define their world, individuals can imagine a different future and be motivated to develop new knowledge in order to achieve what they have envisaged. For Nonaka and Takeuchi, the creation of new knowledge is as much about ideals as ideas. This opens up the possibility of viewing organisational innovation in new ways:

> The essence of the innovation is to recreate the world according to a particular ideal or vision. To create new knowledge means quite literally to re-create the (organisation) and everyone in it in an ongoing process of personal and organizational self renewal (Nonaka & Takeuchi, 1995, p.10).

2.5.5 Group Tacit Knowledge

Polanyi (1997), talked about tacit knowledge at an individual level - noting that the individual knew more than they could tell. Others have extended the idea to

talk about tacit knowledge distributed across groups of people in the form of mutual understandings or unconscious norms developed over time (Leonard & Sensiper, 1998). Groups may draw on their collective tacit knowledge to identify and solve problems (Leonard & Sensiper, 1998). Members of the communities of practice described by Lave and Wenger (1991) developed ways of implicit knowing by working together (as illustrated by Cook & Yanow, 1993). Group tacit knowledge may involve shared beliefs that have not been made explicit. They may be task specific or social, for instance, part of a community's tacit social knowledge may concern how to relate as a group, how to deal with a stressful situation, or how to handle the leader (von Krogh, Ichijo & Nonaka, 2000). Leonard and Sensiper (1998) suggest that the purest form of collective tacit knowledge may be group process.

2.5.6 Information and Knowledge Construction

Some organisations may see knowledge as something to collect and manage – viewing it as information to be drawn on when needed. However:

> Creating new knowledge is…not simply a matter of learning from others or acquiring knowledge from the outside. Knowledge has to be built on its own, frequently requiring intensive and laborious interaction among members of the organization (Nonaka & Takeuchi, 1995, p.10).

While explicit knowledge from 'outside' is significant in the creation of knowledge (Horvath, 2000; Nonaka & Takeuchi, 1995), practitioners within the organisation have a vital role to play. Outside knowledge may provide new ways of understanding and interpreting events, but it is organisational members who build on this, bringing their belief and commitments to bear and relating the information to contextualised implementation (Nonaka & Takeuchi, 1995). Unlike information, knowledge is about intention, commitment and beliefs. It is also about action (Takeuchi, 1998).

Horvath (2000) suggests that what is knowledge in one context is information in another. Viewed from this perspective, knowledge from outside is received as information. Organisational members can add context, meaning and purpose to this information moving it along a continuum towards new knowledge. From this

perspective, knowledge is created by 'adding-value' to information (Horvath, 2000).

> The conversion of information to knowledge occurs along…a value chain and the terms 'knowledge' and 'information' are similarly dependent upon the context in which they are used (Horvath, 2000, p.35).

Knowledge creation is more than just getting new information from outside to solve existing problems and adapt to changing environments (Nonaka & Takeuchi, 1995). When organisations innovate in response to change or to solve problems, they create new knowledge 'inside' the organisation. (von Krogh & Grand, 2000; Nonaka & Takeuchi, 1995), drawing on outside knowledge as appropriate.

2.6 Knowledge Creation Model: Nonaka and Takeuchi

To explain knowledge creation in an organisation, Nonaka and Takeuchi (1995) draw an important distinction between tacit and explicit knowledge, arguing that it is in the conversion of tacit knowledge to explicit knowledge that organisational knowledge is created. For them, the key to knowledge creation lies in the mobilisation and conversion of tacit knowledge through interaction between individuals. Then, as knowledge is created in an organisation it moves from individual, to group to organisational knowledge (Takeuchi, 1998; Nonaka & Takeuchi, 1995). The knowledge creation spiral grows from ongoing cyclic interaction between these epistemological and ontological dimensions – the organisation providing contexts for creative individuals to create knowledge (Nonaka & Takeuchi, 1995).

> Organizational knowledge creation, therefore, should be understood as a process that 'organizationally' amplifies the knowledge created by individuals and crystallises it as part of the knowledge network of the organization. This process takes place within an expanding community of interaction (Nonaka & Takeuchi, 1995, p.59).

2.6.1 The Knowledge Creation Spiral

The knowledge creation model (Nonaka & Takeuchi, 1995) is based on:

> …a spiralling process of conversions between tacit and explicit knowledge involving the four stages of socialisation, externalisation, combination and internalisation (Nonaka & Nishiguchi, 2001, p.4).

Drawing on Nonaka and Takeuchi (1995), Nonaka, Konno & Toyama (2001) describe the four modes of knowledge conversion as *socialisation* (from tacit knowledge to tacit knowledge); *externalisation* (from tacit knowledge to explicit knowledge); *combination* (from explicit knowledge to explicit knowledge); and *internalisation* (from explicit knowledge to tacit knowledge). Arising from the interaction of tacit and explicit knowledge, these stages are the 'engine' of the entire knowledge creation process and provide the means whereby individual knowledge becomes articulated, organisationally amplified and integrated into the knowledge network of the organisation (Takeuchi, 1998; Nonaka & Takeuchi, 1995). What follows is a brief explanation of each of the stages in the knowledge creation process. Their more specific application in a school context is explored later.

2.6.2 The Four Stages of Knowledge Creation

The first stage in the knowledge creation process, *socialisation*, emphasises the sharing of tacit knowledge by engaging in joint activities in specific contexts (Nonaka, Konno & Toyama, 2001; Nonaka & Konno, 1998; Dixon, 1996; Nonaka & Takeuchi, 1995). The next stage, *externalisation*, involves the articulation of tacit knowledge into explicit concepts which may be shared and become the basis for new knowledge. Dialogue and the use of figurative language, metaphor and symbolism are very useful in this stage as tacit knowledge may be difficult to express (Nonaka, Konno & Toyama, 2001; Oliver & Roos, 2000; Nonaka & Konno, 1998; Nonaka & Takeuchi, 1995). While socialisation involves two or more people working in close proximity, externalisation involves group activity. As people come together to express what they tacitly know, their intentions and ideas are shared, providing the basis for the development of the group's mental world (Nonaka & Konno, 1998). This process is explored from a cognitive perspective in the section relating to distributed cognition and systems of shared cognition.

The third stage in the knowledge creation process is *combination.* This is a process of combining different bodies of explicit knowledge (Nonaka & Takeuchi, 1995). Though making their tacit knowledge explicit, the members of the group create new shared understandings. The explicit knowledge the group has forged through their deliberations needs to be converted into more complex and systematic explicit knowledge (Nonaka & Konno, 1998). At the combination stage, knowledge generation relies on the integration of the new explicit knowledge into existing organisational knowledge, its dissemination across the organisation, and its processing into useable forms such as documentation (Nonaka & Konno, 1998). While figurative language plays an important role in *externalisation*, helping to create concepts from tacit knowledge, *combination* requires clearly articulated language (Nonaka, Konno & Toyama, 2001).

The final stage in the knowledge creation process is *internalisation* which involves enhancing tacit knowledge by translating the new knowledge into practice. Documentation or diagrams may help the individual to internalise what they have experienced, thus enriching their tacit knowledge (Nonaka & Takeuchi, 1995). Through internalisation, knowledge that has been created is linked to shared mental models and changed practice.

> Internalised knowledge is used to broaden, extend, and reframe organizational members' tacit knowledge…This tacit knowledge accumulated at the individual level is in turn shared with others through socialisation, setting off a new spiral of knowledge creation (Nonaka, Konno & Toyama, 2001, p.17).

2.6.3 Moving between Stages in the Knowledge Creation Process

The knowledge creation theory developed by Nonaka and Takeuchi (1995) recognises that while knowledge is generated by the dynamic interaction between tacit and explicit knowledge, triggers are needed to prompt shifts between the different stages of knowledge creation. Socialisation is triggered by the establishment of a 'field of interaction' where experiences and mental models can be shared. Externalisation is triggered by collective reflection or meaningful dialogue. Use of figurative language helps group members to articulate tacit knowledge. Combination is triggered by 'networking' newly created knowledge

and existing knowledge from other sections of the organisation and learning by doing triggers internalisation (Nonaka & Takeuchi, 1995).

2.6.4 Spreading New Knowledge Across the Organisation

An early stage of knowledge creation, the conversion of tacit knowledge into explicit knowledge through sharing, is not necessarily an organisation-wide process. Frequently, informal groups within an organisation work together as communities of practice – sharing understandings, solving problems and exchanging insights (Wenger & Snyder, 2001; Lesser & Prusak, 2000). Such groups can play a critical role in creating, sharing and applying organisational knowledge (Lesser & Prusak, 2000).

The questions are then raised of how this knowledge permeates through the rest of the organisation and how it becomes relevant for the broader range of organisational members who have not shared the original group's experience and intuitions. For von Krogh and Grande (2000), this involves turning the new concepts into justified true belief at an organisational level. If the new knowledge generated by a group is to be taken up by the organisation, it needs to go through a process of justification. This process essentially decides whether the new knowledge will remain localised, be rejected, turned back for further elaboration or accepted as justified true belief at an organisational level (von Krogh, Nonaka & Nishiguchi, 2000; von Krogh & Grand, 2000). The dominant management logic or organisational mindset is very influential in this process (von Krogh, Nonaka & Nishiguchi, 2000; von Krogh & Grand, 2000).

> Justification processes decide whether new knowledge is *rejected* as definitively not being relevant or interesting, since it does not contribute to the existing knowledge base in any substantial way; *returned* provisionally for further elaboration, in order to be re-evaluated in some later state; or finally *appropriated* as justified true belief and therefore integrated into the corporate knowledge base (von Krogh & Grand, 2000, p.18, emphasis in original).

An interesting paradox arises out of the process of justifying newly created knowledge. If accepted as justified new knowledge, it may enhance the dominant existing organisational paradigm – yet, ultimately it may challenge that same dominant logic (von Krogh & Grand, 2000). It is through the justification process

that the new knowledge leads to new perspectives and the current situation is transformed or the existing views are retained (von Krogh & Grand, 2000).

In a 1998 interview, Senge noted that as some groups within an organisation are more predisposed to change than others, different parts of the organisation are likely to change at different rates (Fulmer & Bernard, 1998). The 'successful' groups may prove threatening to other organisational members – a point not necessarily recognised by innovative teams:

> If people have actually 'learned' and begun to change how they think and act, their new behaviour will…be threatening. Others not predisposed to change will react with a natural competitive response (Senge in Fulmer & Bernard, 1998, p.38).

The process of justification may be hampered if the group that developed the new knowledge take an evangelical approach to spreading their learning across the organisation, prompting a negative response as a result (Senge et al., 1999). An innovative group working closely together may be in danger of becoming isolated and distanced from the rest of the organisation. They may begin to feel unappreciated and misunderstood (Horvath, 2000) and, in the certainty that what they have created is right, no longer 'hear' dissenting voices (Senge et al., 1999, p.320).

> Dynamics on both sides of the gulf reinforce this isolation, and make the gap widen…If they continue to maintain momentum, their success will be seen as implicit criticism of more established ways of working…(and) increasingly at odds with the larger organisation (Senge et al., 1999, p.320).

The concepts that have been explored in this section are central to the literature on knowledge creation and have clear links to the core constructs of this research. Despite being grounded in business rather than educational settings, these key concepts may be used to illuminate knowledge creation processes in the case study schools. The distinction between tacit and explicit knowledge (as well as the relationship between these two forms of knowledge) is of fundamental importance to this inquiry. Also crucial are the recognition that tacit knowledge has both cognitive and a practical dimensions and that the sharing of tacit knowledge plays a vital role in the knowledge creation process.

The following section explores these concepts more specifically in relation to teachers' practical theory.

2.7 Teachers' Practical Theory

The literature suggests that all teachers have a practical theory of teaching. This is not a theory in the scientific sense, used for hypothesising, predicting or explaining what will happen under certain conditions (Handal & Louvas, 1987). Rather, it is an unarticulated set of beliefs and practical understandings which in a very powerful way guides what teachers do in their classrooms (Tripp, 1993; Handal & Louvas, 1987; Elbaz, 1983). The tacit knowledge of teachers may be viewed as being significantly linked with their practical theories. In their day-to-day teaching, teachers 'apply' their own ideas about students, teaching approaches and learning outcomes (Dann, 1990). Teachers have a wealth of tacit knowledge in their practical theories and the process of articulating and sharing this tacit knowledge is central to the generation of knowledge in professional learning communities..

Practical theory is a complex personal conceptualisation of what constitutes good teaching. Broadly speaking, it is constructed out of a teacher's knowledge, experience, beliefs and values (Marland, 1993). Handal and Louvas use the term to refer to "…the indefinite number of 'bundles' of knowledge, experiences and values which have been continuously established in people, related to teaching" (1987, p.10). It is significant to note that while teachers may hold similar theories there is always be an individual aspect to them as a result of different experiences.

Teachers' Practical Theory and Change

This inquiry is concerned with how teachers in professional learning communities may engage in a process of whole-school renewal, to generate knowledge they can use to meet the needs of their students. This is occurring against a background of ongoing change. Teacher practical theory is significant in two ways:

- it represents the tacit knowledge of individual teachers which is essential to the generation of new, shared knowledge; and
- it is difficult to articulate and hard to change.

It can be argued that many teachers are resistant to changing their usual practice. It cannot be assumed, for example, that because a policy has been adopted by a school or school system that this will necessarily lead to change at the classroom level – or, that if change does occur, it is that intended by the policy makers (Bowe, Ball & Gold, 1992; Smyth, 1991). Imposed change may be viewed as a criticism rather than as a challenge or a positive development (Lens & de Jesus, 1999). As Smyth points out, "Ideas have roots (just like teeth) and sometimes it is a painful process to extract old ones" (1998, p.9). If change is to occur at the individual classroom level, then attention has to be paid to fostering the articulation of teachers' practical theory, in order to make it susceptible to change (Handal & Louvas, 1987). Fullan argues that the success of educational change rests on what teachers do and think. He advises, "Understand the subjective world – the phenomenology – of (teachers) as a necessary precondition for engaging in any change effort with them" (1991, p.131).

Teachers may resist change if it creates potentially stressful conditions and feelings of incompetence (Bolman & Deal, 1997) or threatens the sense of security that comes with knowing what is expected within a school tradition (Smylie, 1999; Sikes, Measor & Woods, 1985). This disruption of the teachers' familiar world can be unsettling and threatening to identity (Maurer, 1996). Change can threaten a teacher's confidence in their practical knowledge, by creating uncertainty about the new skills required.

> …(It) may challenge the confidence individuals have in the appropriateness and adequacy of their knowledge, skills and response repertoires…(Also) change may evoke stress by challenging the beliefs, values, attachments and assumptions that create personal order and meaning in an organization (Smylie, 1999, p.71).

Nias (1998, 1992, 1986) maintains that teachers' reluctance to alter their pedagogical practice may be explained by the way a teacher's identity and personality is closely bound up with how they teach. It can be argued that within their school and their profession, teachers seek to preserve their sense of personal identity making, resisting changes to their values and beliefs and therefore their practical theories.

In change efforts, the origin and the driving force behind the change are clearly important. Teachers may be willing to change but not *be* changed (Maurer, 1996), and may resist if they feel threatened. Thus, by its very nature, teachers' practical theory is personal, and where change involving new beliefs and values is imposed, there is likely to be significant resistance. Such change may end up being what Hargreaves (1994) describes as 'top-show', not affecting teaching and learning in any significant way.

This section has considered the nature of knowledge and of understanding and has looked at the knowledge creation process. The knowledge creation model developed by Nonaka and Takeuchi (1995) emphasises the importance of tacit knowledge which, for the purposes of this study, foregrounds the importance of teachers' practical knowledge, particularly in relation to change. This is significant to the inquiry as the sharing of teacher knowledge is a key aspect of the knowledge creation in a process grounded in the work of teachers – where change is a reflection of the implementation of the knowledge created by teachers.

The next section provides an account of the literature which broadly relates to the second research question concerning the types of individual and organisational learning that support whole-school renewal. It considers the dynamics of the relationship between individual learning and organisational learning, drawing on insights offered by situative learning perspectives. The notion of individual cognition taking place in social and cultural processes, alluded to previously, now becomes a focus for consideration along with systems of cognition that hold and help to further develop the learning of the group.

While there is some overlap in the literature relating to knowledge creation and learning organisation, the purpose of each of these sections is different. Each has been specifically included to address a particular aspect of this study and therefore has a different focus.

2.8 Individual and Organisational Learning

Knowledge creation, situative cognition and connectionist theories all help to throw new light on possible answers to the question asked by Argyris and Schön, "What is an organisation that it might learn?" (Argyris & Schon, 1996). They

themselves suggest that an organization 'learns' when it acquires information of any kind by whatever means. Rait (1995) suggests that organisational learning has a wide range of meanings, from simple adaptation to the environment to double-loop learning. Watkins and Marsick (1993) view it as changed organizational capacity for doing something new. O'Sullivan (1997) argues that all organisations learn – but in different ways, with different degrees of success and different types of practitioner involvement. According to Leithwood and Louis (1998) organisations are continually learning. What is being learned may be useful or dangerous, mundane or insightful, may lead to change or provide ways of avoiding change. For those who take a cognitivist approach (e.g. Kim, 1993), this question represents a dilemma because organisations are non-human entities and therefore can only learn through the learning of individual organisational members. This is a paradox recognised by Argyris and Schön (1996). Leithwood, Leonard and Sharratt (1998) suggest that most accounts of organisational learning assume it is similar (literally or metaphorically) to individual learning and cognitive explanations of individual learning are used to represent the nature of the organizational learning process. Marks and Louis (1999), however, emphasise the contextual, collective and socio-cultural aspects of organisational learning, and offer the following definition:

> …the social processing of knowledge, or the sharing of individually held knowledge or information in ways that construct a clear, commonly held set of ideas. This process may be deliberately cognitive, but it more often develops from the accretion of mutual understandings over time in a stable group (Marks & Louis, 1999, unpaginated).

The relationship between individual and organisational learning is explored in the following sub-sections. It is viewed from the perspective that organisational learning means more than the learning of individual organisational members.

2.8.1 Cognition: Individual and Social

'Traditionally' human intelligence has been conceived as something possessed by individuals, with cognition taking place inside their heads (Rogers, 1997; Salomon, 1993a; Resnick, 1991). From this perspective, 'context' plays no constitutive part in the thinking process (Rotman, 2000). This has changed in recent years, with increasing recognition that cognition is situated in cultural and

social processes (Rotman, 2000; Hutchins, 1995; Pea, 1993). Changing perspectives on cognition have focused attention away from the individual, blurring the boundaries between inside and outside, individual and context, individual and group; self and the world (St. Julien, 2000; Rogers, 1997; Hutchins, 1995; Bredo, 1994). An increasing number of studies is being carried out on thinking as a sociocognitive activity (Resnick, Levine & Teasley, 1991) and Greeno (1997) suggests that a coherent, synthesised, theory of social interaction and of cognitive processes might be possible – to begin bringing the two strands together. The difficulty of this proposition should not be underestimated, however, given the depth of division between them (Cobb & Bowers, 1999).

2.8.2 Situated Cognition

There is a view of cognition that may be described as 'the situative perspective' (Greeno, 1997; Greeno, Collins & Resnick, 1996). Central to this perspective is that cognition is contextualised**,** social and distributed (Putnam & Borko, 2000). Situative theorists (e.g. Lave, 1991; Brown, Collins & Duguid, 1989) argue that context plays an integral part in cognitive activity – participation in practice is the main activity through which learning occurs – and that this is an ongoing process as understanding and experience interact and meanings are negotiated.

The term 'situated cognition' has been used to denote practice-centred knowledge, as distinct from knowledge that is abstract and decontextualised (Damon, 1991). Situated thinking is grounded in action, embedded in historical, cultural and social-relational contexts (Damon, 1991).

> (It)…involves adapting knowledge and thinking skills to solve unique problems…and is based upon the concept that knowledge is contextually situated and is fundamentally influenced by the activity, context, and culture in which it is used (McLellan, 1996, p.9).

Situated learning is concerned with learning through authentic social interaction in a community of practice (Wenger, 1996; Lave & Wenger, 1991). It is about developing contextualised knowledge in real world situations (McLellan, 1996) and is closer to being the experience of knowledge, rather than its acquisition (Moore, 1999). While situated cognition is contextualised, aspects of learning in

one context may be used successfully in other situations (Greeno, 1997). Hatch and Gardner (1993), however, suggest that personal, local and cultural 'forces' all contribute to cognition and that a change in one or more can change both what people do and what they are capable of doing.

2.8.3 Cognition as Social Process

From a social constructionist perspective, knowledge is a social product which evolves through a process of negotiation in discourse communities, influenced by cultural and historical factors (Prawat & Floden, 1994; Fish, 1980). Individuals participate in numerous such communities where meaning is negotiated and renegotiated as members of the community develop and share expertise (Resnick, 1991). Putnam and Borko (2000) suggest that knowledge and ways of thinking grow out of interactions in groups over time and that interaction with others is a major determinant of what is learned and how learning takes place. The group comes to construct new understandings, developing a common mind and a common voice (Wertsch, 1991). Discourse communities provide the cognitive tools (ideas, concepts and theories) that people use to make sense of their experience. New people coming into the community are socialised but also bring new thinking to the discourse (Putnam & Borko, 2000). All of this suggests that social processes may be viewed as cognition, with people jointly constructing knowledge "under particular conditions of social purpose and interaction" (Resnick, 1991, p.2).

The interpretive frameworks developed in discourse communities, however, can have both an enabling and a constraining effect on thinking. Theories embedded in these frameworks may be unknowingly accepted (Resnick, 1991). Thinking is also significantly influenced by the kinds of beliefs and reasoning schemas available in the context (Resnick, 1991). The norms of reasoning may be constraining within a particular discourse community. Already held beliefs about the nature of the world may be confirmed while evidence for other interpretations may be discounted, ignored or reinterpreted (Hutchins, 1991).

Huberman notes that organisational learning is influenced:

> …by the latent and often unspoken rules and assumptions among staff, which regulate the way that institutional practices are conceptualized, compared, validated and modified (Huberman, 1983, p.479).

This suggests that organisational culture has a significant part to play in cognitive processes, a point that is explored more specifically below.

In situated knowledge theory, knowledge is dynamically constructed through talk and action but these are influenced by how the activity is conceptualised within the group (Clancey, 1995). The development of knowledge may be constrained by each individual's understanding of what they are supposed to be doing. Part of learning may involve the individual expressing how they conceptualise their work, opening up the possibility of reconceptualising roles and developing knowledge that could not have emerged under the previous conditions (Clancey, 1995). This becomes powerful where interactional capacity is developed and, through collaboration, new representations of everyday work may create space for change (Clancey, 1995). This represents the type of learning described by Argyris and Schön (1996) as double-loop learning.

As previously indicated, Argyris and Schön (1996) distinguish between single-loop learning and double-loop learning. The former is about solving problems without questioning the norms – the underlying assumptions – of the organisation. It is about working within existing ways of knowing. In contrast, double-loop learning is used to find new ways of knowing though questioning the relevance of basic assumptions and operating norms (Argyris, 1999; Argyris & Schon, 1996). Drawing on this notion, Morgan (1997) notes that while many organisations are proficient at single-loop learning, double-loop learning is more elusive. To engage in double-loop learning, organisational members need some understanding of the basic paradigms and operating norms that underpin their organisation, to be better able to challenge and change them when necessary (Morgan, 1997). This is difficult to do, particularly in bureaucratic organisations, whose operating structures can actually obstruct the learning process by creating fragmented patterns of thought and action (Morgan, 1997). The problem may be exacerbated, if, as a result of these difficulties, organisational members engage in defensive routines (Argyris, 1990) which may become embedded in the culture of the

organisation, generating patterns of thought that prevent people from addressing key aspects of their organisational reality (Morgan, 1997).

It is now opportune to consider organisational culture and its relationship with cognitive processes and with change. As Watkins and Marsick (1993) observe, changes to organisational culture are critical in organisational change – more important than structural or resourcing changes. This is not necessarily an easy process.

2.8.4 Organisational Culture

Organisational culture began to attract attention in the early 1980s when explicit links were made (e.g. Peters & Waterman, 1984) between strong corporate cultures and corporate success. Culture came to be viewed as something which could be manipulated by management in the pursuit of organisational goals (Lakomski, 2001). Schein, viewing culture as a key concept in the functioning of organisations (1996a), argued that, over time, as a result of shared experience, a group learns together, developing tacit assumptions about the world and patterns of thought, feelings and behaviour (1996b; 1992). He defined culture as:

> A pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to members as the correct way to perceive, think and feel in relation to these problems (Schein, 1992, p.12).

Schein (1999; 1996b; 1992) talks about three levels of culture: the visible organisational processes and structures; the espoused values and norms; and the tacit, basic underlying assumptions Culture is deep, stable and difficult to change because it represents the accumulated learning of the group – the ways of thinking, feeling and perceiving the world that have made the group successful (Schein, 1999).

For Schein, the enduring nature of culture, its inherent stability, can have an inhibiting effect on organisational change as cultural assumptions and organisational behaviours may be difficult to unlearn, even when they have become dysfunctional (1993a). Taking the view that it is the leader's role to create and manage culture, Schein (1992) argues that if the culture of the

organisation is dysfunctional it is the responsibility of the leader to bring about change. If employees resist this, feeling anxious about its implications, then the leader needs to create even greater anxiety (Schein, 1993a) as a motivation for learning and for change. In this way the learning anxiety which is the basis of resistance to change is replaced by anxiety based on the realisation that change is necessary to survival (Coutu, 2002). Schein suggests that change generally arises from threat (Coutu, 2002).

Lakomski (2001) explores Schein's understanding of organisational culture and its role in organisational change, accepting that much of what is said is useful but disagreeing with his perception of the leader as change agent, responsible for creating the change from dysfunctional to functional culture. Lakomski (2001) argues that leaders are not all-knowing nor are they able to 'step-outside' the culture to determine the problems to be fixed. This makes the causal link between leader and change, as argued by Schein, problematic.

There is clearly a tension here. Cultural change is central to organisational change, but involves the difficult task of changing aspects of culture such as basic assumptions (Schein, 1992) and theories in use (Argyris & Schon, 1996). The deeply embedded nature of these shared patterns of understanding and action gives them stability and there are clearly problems with the idea that the leader can engineer cultural change (Lakomski, 2001). However, if culture is viewed from a different perspective, an understanding which allows the possibility of change emerges.

2.8.5 Culture as a Cognitive Process

Recognising both the important role played by cultural change in organisational change and the tendency of culture to be both stable and variable, Lakomski (2001) draws on Strauss and Quinn (1997) to develop the notion of culture as a cognitive process. Using insights gained from connectionist theory, Lakomski (2001) uses this perspective on culture to explain the dynamics of individual and collective cognition in organisations, and differing responses to change. What emerges is a view of culture that takes into account the blurring of boundaries between individual knowledge and public culture – a view which fits with the

increasing recognition that cognition is situated in cultural and social processes (Rotman, 2000; Hutchins, 1995; Pea, 1993). As Strauss and Quinn note:

> External, symbolic features, traditionally believed to represent culture, and internal non-symbolic ones such as beliefs, values, and meanings, usually taken to be the property of the individual mind, are no longer seen to represent separate worlds but one world (1997, p.69).

Connectionist theory also provides insight into the dynamics of the process at work. If the brain is seen as a neural net and pattern processor rather than a symbol processor, a different understanding of the processes at work is possible (Lakomski, 2001).

Viewing culture as a cognitive process provides a means of understanding the 'paradox of culture' where variable individual responses occur within relatively stable structures (Lakomski, 2001). From a connectionist viewpoint, it is possible to have both shared assumptions and understandings forming a relatively stable cognitive structure but varying reactions to particular events depending on an individual's schema at any given moment (Strauss & Quinn, 1997). This means that cultural meanings can be shared but with individual inconsistencies and variations (Strauss & Quinn, 1997) arising from variations in the connection weights in the neural nets of individuals – prompting different responses to the world (Lakomski, 2001).

For Strauss and Quinn, cultural meanings are the typical interpretations of an object or event evoked in people who have shared experiences (1997, p.82). People share cultural meaning as a result of the experiences they have in common. Using a connectionist analogy to illuminate this process, neuronal connections that are repeatedly activated by the environment are strengthened, and are thus not easily undone. In the same way cultural understandings, or patterns of activation, are strengthened by repetition and reinforcement and so are difficult to 'dislodge' (Lakomski, 2001). The strength and density of the connections between elements in the patterns learned will vary depending on repeated exposure to shared experience (Strauss & Quinn, 1997, p.53). Where connections are strong, existing patterns may override any disconfirming evidence, filtering it out (Lakomski, 2001). The tendency to maintain shared schemas can be reinforced through ongoing interaction and by organisational

practices and routines (Lakomski, 2001). The result may be interpreted as resistance.

There is scope for variation and development however. While cultural meaning can be enduring, this does nor preclude the modification of existing schema or the formation of new ones (Strauss & Quinn, 1997). There will be a degree of difference in individual responses, depending on the person and the influence of the context. Also, while schema may be shared, levels of motivation to enact them may vary (Strauss & Quinn, 1997). The process is summarised by Lakomski:

> …established networks, when fed new information, follow their tendencies to complete the pattern, override it, or, as the case may be, shift their connection weights. Change, as a result, is slow and piecemeal because it is so context-sensitive. When change, as described, happens, and when it has become enshrined in new routines…then the organization can be said to have truly learnt (2001, p.75).

This suggests that new information can impact on the culture as new patterns begin to emerge, arising from the variable responses of individuals. In this way cultural change, so central to organisational change, may be achieved, not by decree, but through shared experiences, repeated and reinforced to build the connection weights and consolidate the learning. And, as Heylighen (1997) notes, ideas transmitted frequently are likely to be assimilated frequently.

While culture is durable, it can also be changeable as variable responses to the shared experiences open up the possibility of innovation and change as new patterns begin to emerge. This also fits with the notion that teachers' practical theories are subject to change within a cultural context – that while these are part of an individual's knowledge structure and relatively stable, they may be altered through experience (Dann, 1990).

Where different groups within an organisation have different shared experiences, their cognitive networks will evolve differently, which, in turn, will influence their interpretation of a given object or event (Strauss & Quinn, 1997). This is interesting when considered in conjunction with knowledge creation theory – where the learning of an innovative group may need to be spread across the

organisation. Facilitating a broader base for shared experience may be a significant factor in the success of such an enterprise.

The notion that new information coming into an organisation can give rise to new patterns of cultural meaning takes on even greater significance when viewed in conjunction with knowledge creation processes, where organisations are using information as the basis for creating their own context specific knowledge. This involves making tacit assumptions explicit, sharing meanings, creating knowledge and transposing what has been created into action. This is a process built around sharing experience – so the notion of patterns of interaction is very relevant.

2.8.6 Collective Mind in Organizations

The process of cultural change in an organisation viewed from a connectionist perspective easily leads into the notion of 'collective mind' which also draws on the idea of knowledge lying in the patterns of connections between units in a neural network (Weick & Roberts, 1996). If patterns of organisational activities are seen as encoding concepts and ideas in the organisation, it is possible to envisage organisational mind as rich patterns of connections within the activities of the organisation (Weick & Roberts, 1996). If, as Weick and Roberts suggest, mind is viewed as activity rather than entity, intelligence may be found in patterns of behaviour rather than in individual knowledge (1996).

The term 'collective mind' refers to individuals who act as if they were a group:

> …since only individuals can contribute to the collective mind, but a collective mind differs from an individual mind because it inheres in the pattern of interrelated activities among many people (Weick & Roberts, 1996, p.334).

Weick and Roberts caution that in a culture of individualism too few connections may be made to develop collective mind. When organisational members work together, interrelating attentively and with care in their collaborative efforts, their collective mind will develop. The more heedful their interaction, the more capable of intelligent action the collective mind will become. Trust is also an important factor (1996).

2.8.7 Cognition as Distributed

Light may be thrown on the relationship between individual and collective learning by the work of those interested in distributed cognition (e.g. Hutchins, 1995; Salomon, 1993b, Salomon, 1993a). How an organisation 'learns' is clearly relevant to the notion of organisational knowledge and to the relationship between the knowledge of the individual and that of the group. Nickerson notes:

> …at one level the idea of knowledge being distributed in a group is intuitively compelling…but, what it means for a group to know something must differ in very substantive ways from our conception of what it means for an individual to know something (1993, pp.232-233).

Both Pea (1993) and Nickerson (1993) comment on the social construction of new knowledge through the collaborative effort and interaction of group members.

According to Salomon (1993a), interest in distributed cognition grew out of work with computers, growing interest in Vygotsky's thinking and growing dissatisfaction with the in-the-head view of cognition. Increasingly the focus of interest has shifted towards a view of cognition as situated, context dependant and potentially distributed (Salomon, 1993a). For Hutchins (2002), understanding individual cognition is only the first step in trying to understand how more complex human cognitive systems operate.

In distributed cognition, the cognitive system essentially consists of a collection of individuals and artefacts and their relations to each other in a particular work practice (Rogers & Ellis, 1994; Salomon, 1993a). The artefacts represent the learning which has arisen from the collaborative activity of the group, captured in some form and, in turn, influencing, guiding and augmenting their ongoing activity – shaping what is possible (Pea, 1993). People learn when they work together to tackle real life problems in their particular situations (e.g. Lave, 1991; Lave & Wenger, 1991). They think in conjunction with each other using their artefacts (Rogers, 1997; Salomon, 1993a) and the social surrounds as vehicles of thought (Perkins, 1993). So, while individual learning may be occurring, it is not just the individual who learns. These artefacts and understandings, the social surrounds, the whole system of interrelated factors, become part of the learning (Perkins, 1993; Salomon, 1993a). Material and conceptual artefacts are used as

tools to expand the capabilities of the group (Winsor, 2001). The knowledge distributed across the system, and captured in the artefacts, assists the group to achieve cognitive tasks beyond the capabilities of any of the individual members (Hutchins, 1991, 1996) allowing the group, through their collaborative effort, to substantially contribute to change (Pea, 1993). The vision statement and schoolwide pedagogy developed through IDEAS are examples of such artefacts that both capture the learning of the group – the knowledge they have created – and become a part of the ongoing learning.

The individual's ability to perceive and comprehend is limited as perspectives are partial and understandings incomplete (Kerwin, 1993). While the same may be said of the group, collaborative activity increases the potential for interpreting and understanding and for recognising areas of 'not knowing' which may fuel further inquiry:

> …because we are often aware of what we know, and rarely aware of what we do not, we tend to overemphasise the range and importance of our knowing. While the known and the knowable are minute proportions of the unknown, it is the known we identify with "reality" (Kerwin, 1993, p.173).

The concept of distributed cognition allows the possibility of viewing intelligence as an emerging quality rather than 'a possession' (Salomon, 1993a, p.xiv), and as something that may be accomplished (Pea, 1993). Socially distributed cognitive systems have cognitive properties of their own, different from those of the individuals in the group with intelligent processes transcending the boundary of the individual actor (Rogers, 1997; Hutchins, 1995). This gives some insight into the possible relationship between individual and group cognition. People working together bring different types of knowledge which can be shared (Rogers, 1997) and may provide a more complicated type of reasoning (Winsor, 2001). Through collaboration and dialogue new knowledge is socially constructed out of these different perspectives as people meet their challenges (Pea, 1993), emerging as the knowledge bases of individuals are accessed through interaction (Nickerson, 1993). Importantly, too:

> …new knowledge may be inferred from two or more knowledge bases in combination that could not be inferred from one of them alone…(And) new knowledge in the form of insights and discoveries may be produced

> as a consequence of interactions among the members of a group (Nickerson, 1993, p.240).

At the same time, where people are engaged in thinking collectively, the socially distributed cognitive system they develop becomes an essential part of their cognitive ability as individuals (Rotman, 2000). Salomon talks about the reciprocal influence between individuals' cognitions and distributed cognitions which takes place in activities where cognitions are shared:

> These activities provide the opportunity for individuals' skills to enter into distributed, intellectual partner-like situations…while also affording the opportunity for the practice of skills. Specifically, the general hypothesis would be that the 'components' interact with one another in a spiral-like fashion whereby individuals' inputs, through their collaborative activities, affect the nature of the joint, distributed system, which in turn affects their cognitions such that their subsequent participation is altered, resulting in subsequent altered joint performances and products (Salomon, 1993b, p.122).

This resonates with the knowledge creation spiral (Nonaka & Takeuchi, 1995) described in detail in Sections 2.5 and 2.6. Similar phenomena are being discussed from two different theoretical perspectives, though the knowledge creation theorists are referring more directly to the interplay between individual and group knowledge as tacit knowledge is shared and made explicit. From a distributed cognition perspective, the cognitive systems created through collaborative activity become contexts for the cognition of people who participate in them (Hutchins, 1995). There is a dynamic interplay between individual cognition and systems of distributed cognition. The collective construction of a system of distributed cognition allows the development of individual competencies, providing a scaffolding that promotes individual development (Salomon, 1993b). The sharing of knowledge and of understandings within a cognitive system enables expectations to emerge which in turn form the basis for coordinated action (Rogers, 1997).

2.8.8 Distributed Cognition in Schools

The notion of distributed cognition can provide useful insight into cognitive systems in schools. Teachers are often collectively ignorant of the knowledge that exists among themselves and consequently cannot share and draw upon that knowledge (Hargreaves, 1999) or know what knowledge is lacking and so

identify where new knowledge needs to be created (Kerwin, 1993). Teachers' collective knowledge is potentially a rich source for new practices or changed conceptions (McLaughlin, 1993). According to Hargreaves:

> There is a complex social distribution of professional knowledge within a school: no single teacher knows, or could know, the totality of the staff's professional knowledge…much professional knowledge about teaching and learning is locked inside the heads of individual teachers and protected by the privacy of the classrooms (1999, p.124).

2.8.9 Culture and Socialisation

From a situative perspective, learning in a community involves becoming more adept at participating in the distributed systems of cognition (Greeno, Collins & Resnick, 1996). Identity is enhanced as, through learning, participants move from the periphery to the centre of a community of practice (Lave & Wenger, 1991). Understanding culture as shared thoughts (a common interpretive framework) and shared customs, Levine and Moreland (1991) note that new organisational members are generally socialised into the culture of their work groups. The learning is a two way process, however. New organisational members may be both socialised into the cultural webs of meaning and at the same time contribute to them (Cook & Yanow, 1993). However, if their motivation to be socialised into the work group is weak, newcomers "may even avoid new information if it conflicts with his or her prior beliefs or threatens a pre-existing social identity" (Levine & Moreland, 1991, p.267). Alternatively, if the 'old' way of working seems unsatisfactory, newcomers may try to bring about cultural change. If they have enough competency to be successful, they may bring about change, creating new knowledge in the process (Wenger, 1998). This is not an easy task, as newcomers are generally less powerful than old-timers (Levine & Moreland, 1991).

March (1996) suggests that staff turnover may be useful in the face of turbulence and an organisation may enhance its capacity for change by bringing in new staff members. This is more effective when the values, knowledge and experience of the new recruits are not closely matched with the existing organisational code, as the diversity increases the aggregate organisational knowledge. Schein (1988) suggests that organisations seeking innovation should not promote socialisation

process aimed at conformity as this will tend to undermine new ideas. Instead emphasis should be placed on diversity and allowing staff turnover, and maintaining a culture that values creativity and views change positively (Schein, 1988).

This section has dealt with individual and organisational learning, both constructs that are central to an understanding of this inquiry. The dynamic interplay between individual and organisational learning is clearly established though the exploration of a series of forms and processes of cognition particularly: individual and social, situated and distributed and within cultural processes. The significance of context in cognitive processes is also explored. These concepts are brought together to as they have a direct bearing on how knowledge creation may be understood in the case study as the teachers engage in a process of whole-school renewal.

2.9 Factors Influencing Knowledge Creation Processes

2.9.1 Knowledge Creation Needs 'Quality' Tacit Knowledge

While the sharing of tacit knowledge is fundamental to the knowledge creation process, not all tacit knowledge is useful and it cannot always be relied upon to yield good quality ideas (Fullan, 1999; Hargreaves, 1994). Much teacher work is still isolated and many teachers have little experience or expertise as a member of a learning community (McLaughlin, 1997).

Critics have suggested that 'privately held unarticulated knowledge' does not provide a good basis for school-wide decisions. According to Little, teachers who are:

> …caught up in the immediacies of the classroom, and isolated from comparative practice or theory, take strong stands against practices different from their own and rely on personal experience to defend what they do. The meanings they give to abstract terms are limited to the boundaries of their own experience (1990, unpaginated).

O'Sullivan notes that not all organisational learning is good – it could be trivial or perpetuating the outmoded "…inappropriate, dysfunctional or deviant" (1997, p.3). Huberman warns:

> …the lure of the common mission enacted by a family of like-minded adults – of professional work planned, observed and carried out in concert – can be a hazardous one. To begin with, it is strongly normative; that is, it allows some people to interpret the professional practice of others on moral terms rather than in technical terms. Second, it may not square with the actual conditions, limitations, and perversities of school life (1993, p.13).

The possibility of 'groupthink', where teachers in a tightly knit culture uncritically 'go along' with the group or refuse to acknowledge the dissent of individuals, is seen as a potential problem. Fullan comments that tacit knowledge can "represent prejudice and self-sealing groupthink" and stresses the importance of "a healthy respect for diversity and conflict…along with an openness and learning orientation to the environment and all its variety" (1999, p.16).

Clearly there is little point in teachers working together on the basis of 'like-mindedness' which results in the mutual reinforcement of poorly formed habits. Teachers' practice cannot simply be taken for granted, it needs to be rendered problematic and opened up to scrutiny and debate (Little, 1990).

This raises a series of challenges for teachers in a professional community. It is not enough to make their tacit knowledge explicit and accessible. They have to be prepared for the close and critical deliberation on assumptions and beliefs about practice. In light of the concerns raised above, about the variable 'quality' of tacit knowledge, it is suggested that professional communities *must* be critical and questioning. It is not enough to 'exploit' old solutions by following well-worn folkways. It is necessary to explore new solutions, challenging the most basic assumptions about practice (March, 1996). This supports the notion that, in the context of rapid change, 'double-loop' learning is more appropriate than 'single-loop learning' (Argyris & Schon, 1996) and fits well with Smyth's concept of a critical learning community where teachers challenge the taken-for-granted aspects of teaching and learning, and rebuild them based on experience of teachers in classrooms (1998, p.7). It is also consistent with the notion of a dynamic professional community characterised by a critical reflection and collective inquiry (King, 2001).

Research findings by Scribner et al. (1999) indicate that double loop learning is invaluable to sustain professional community. Using their collective experience and drawing on the relevant literature, schools engaged in double-loop learning:

> …question underlying assumptions that guide practice so that chosen solutions address the core problem and not merely symptoms. Organizations using double-loop processes often merge new learning with existing organizational knowledge or replace that prior knowledge entirely. In doing so they create new organizational knowledge and new norms that guide future actions and create new cultures (Scribner et al., 1999, p.4).

2.9.2 Language and Communication

Good communication is required if a cognitive system of shared understanding is to function effectively (Winsor, 2001). A shared language or shared terminology is needed to provide common ground for shared understanding to develop – what Krauss (1991, p.172) describes as a "shared communicative environment". A common understanding of terminology is important in the development of common understandings and new organisational paradigms (von Krogh, Ichijo & Nonaka, 2000; von Krogh, 1998). As language shapes action in essential ways (Wertsch, 1991), words for new concepts and processes open up space for reconceptualising work.

Conversations Enable Knowledge Creation

Conversation is vitally important in the knowledge sharing process (Miller, 2000). For Leithwood and Louis (1998), professional conversation is the central medium for the creation of meaning and for organisational change. Through dialogue, groups can transform their collective thinking creating "…an intelligence and ability greater than the sum of individual members talents" (Senge et al., 2000, pp.7-8).

The barriers to knowledge creation arising from the lack of a shared language are an indication of the importance of enabling conversations. It is through discussion or dialogue that people are able to share their mental models - generating new insights and new meaning (Cook & Brown, 1999).

> Through extended discussions…individual knowledge is turned into themes available for others…The mutual exchange of ideas, viewpoints

> and beliefs that conversations entail allows for the first and most essential step of knowledge creation: sharing tacit knowledge… Conversations can unleash the creative powers of individual participants and fuel knowledge creation beyond the capacities of a single mind…Beyond the purpose of sharing individual knowledge, such lively conversations lead to new shared insights that everyone involved owns (von Krogh, Ichijo & Nonaka, 2000, pp.125-126).

A powerful mode of inquiry and collective learning for teams, dialogue allows for both a new repertoire of collective thought and greater coherence to emerge among the group (Isaacs, 1993). By providing a field of enquiry, people learn how to think together not just to share or solve a problem:

> … (but) in the sense of occupying a collective sensibility, in which the thoughts, emotions, and resulting actions belong not to one individual, but to all of them together (Senge et al., 2000, p.75).

By providing a setting in which subtle and tacit influences on thinking can be altered, dialogue holds the potential for allowing entirely new kinds of collective intelligence to appear (Isaacs, 1993). For Ellinor and Gerard (1998), groups that develop the ability to weave individual thinking into collective intelligence can learn together – developing new ways of thinking:

> (The) capability for collective inquiry and reflection is what leads to quantum leaps and breakthroughs in a group's thinking. There may even be times when the group finds itself reaching beyond the boundaries of current understanding into a place it cannot find words to describe. At these times, new knowing is emerging, but the ability to articulate it has not yet caught up (Ellinor & Gerard, 1998, p.122).

This fits with the assertion that creating knowledge requires constant pushing beyond the familiar (Leonard-Barton, 1995) and perhaps describes what Scharmer (2000) refers to as 'not-yet-embodied' tacit knowledge arising from shared practice, shared reflection and the formation of shared will. The formation of shared will is about bringing a sense of common imagining to the surface and developing shared aspirations through dialogue and reflection (Scharmer, 2000). It concerns imagining, or envisioning, a desired but not-yet-enacted reality.

By articulating their perspectives, people can learn from each other, deepen their understanding or even choose to change their assumptions. Such double-loop learning stands in contrast to the maintenance learning which frequently occurs in organisations (Fulmer, Gibbs & Keys, 2000). By giving voice to their individual

truth, each person is opening up the door to their development (Dixon, 1996). Dialogue is an affirmation of the intellectual capability of both the individual and the group, at the same time acknowledging that each person needs to help of others see their own tacit assumptions.

> It acknowledges that each person, no matter how smart or capable, sees the world from a *perspective* and that there are other legitimate perspectives that could inform that view (Dixon, 1996, p.30).

In complex, rapidly changing times, people in organisations need to move away from isolation and fragmentation to talk, think and act together (Dixon, 1996; Isaacs, 1993). Organisations could be seen as a network of conversations, enabling collective thinking and inquiry. However, people typically deal with thought as through it was made up of multiple, unrelated fragments (Bohm, 1994). Recognising thought as a system and a process, Bohm (1994, 1996) believed that dialogue would help to overcome this fragmentation, allowing people to develop common understandings, shared meaning and social intelligence (Dixon, 1996). Dialogue provides a way of making assumptions explicit, sharing and inquiring into them, opening up new ways of seeing (Senge et al., 2000). It also provides a means of evolving mental models that cut across the sub-cultures of an organisation (Schein, 1993b).

> Dialogue has the potential to alter the meaning that each individual holds and, by so doing, is capable of transforming the group, organisation, and society…its essence is that people have collectively constructed new meaning (Dixon, 1996, pp.24-25).

There are clear links here to distributed cognition explored earlier in the chapter.

Dialogue Requires Trust and Respect

Dialogue is a move away from conversations based on raw debate and characterised by advocacy and antagonism (Senge et al., 1994) to conversations based on inquiry leading to an exploration of thought (Watkins & Marsick, 1993). Its practice depends on the organisation having a climate which is open and respectful of individuals and where information is shared, members are free from coercion, and everyone has an equal opportunity to challenge the ideas of others:

> …it is unlikely that individuals would hold up their opinions for scrutiny in a climate where mistakes are seen as failures and the norm is to cover

> up what went wrong. It is equally unlikely that organizational members would challenge others if that challenge might be viewed as insubordination (Dixon, 1996, pp.31-32).

While trust is required, or needs to be developed, this does not mean that successful dialogue will be without deliberation or contention. Beliefs may be challenged and difficult questions asked - but in an environment of trust, these will not be perceived as accusations (Havens & Hass, 2000). The interaction of the group plays a key role in organisational knowledge creation and disagreement within the group may prompt the questioning of existing premises or making sense of their experience in new ways. It is this kind of dynamic interaction that facilitates the transformation of personal knowledge into organizational knowledge (Nonaka & Takeuchi, 1995). Fullan (1999, p.22), notes that conflict, if respected, is positively associated with creative breakthroughs under complex turbulent conditions, and that "collaborative diversity" is important to learning. Leonard-Barton (1995, p.63) talks about the importance of "creative abrasion" while Nonaka and Takeuchi (1995) note that diversity of backgrounds, perspectives, and motivation among organisational members enhances the knowledge creation process as tacit knowledge is shared. While it may be more comfortable to work with those who agree with you, more can be learned from dissonance and from working with those who disagree (Fullan, 1999). The notion of the energy generated by 'creative tension' as a group articulates a vision while recognising current realities also has relevance here (Senge et al., 1999).

2.9.3 Knowledge Creation Requires Good Relationships

Clearly trust and respect play an important role in dialogic interaction. Considering this more broadly, it can also be argued that knowledge creation requires good relationships. Fullan suggests that it is the quality of the relationships among organizational members, as they evolve, that make for long-term success, an ongoing project which he compares to 'prairie growing' (1999 p13). Where social relationships are poor, there will be little sharing of tacit knowledge (Nonaka & Nishiguchi, 2001). High integrity organisational relationships are required to facilitate organisational knowledge development (Miller, 2000) and these can be fostered though 'care' (von Krogh, Kazuo & Nonaka, 2001; von Krogh, Ichijo & Nonaka, 2000; von Krogh, 1998).

> Constructive and helpful relationships enable people to share their insights and freely discuss their concerns…Good relationships purge a knowledge creation process of distrust, fear, and dissatisfaction and allow organizational members to feel safe enough to explore…(new insights) (von Krogh, Ichijo & Nonaka, 2000, p.45).

Lack of trust, competitiveness, reluctance to share information, perceptions about approachability and credibility, and lack of shared responsibility are all factors which endanger the sharing of knowledge (Andrews & Delahaye, 2000; von Krogh, 1998). Knowledge creation requires an environment characterised by trust, empathy, support, lenience in judgement (not blaming), and the courage to take risks and voice opinions (von Krogh, Ichijo & Nonaka, 2000; von Krogh, 1998).

It can be seen that the quality of relationships and level of care present in an organisation will have a significant impact on the knowledge creation processes (von Krogh, 1998, 2001). In a low care organisation, isolated individuals are likely to be in competition with others, guarding their knowledge and not taking risks (von Krogh, 1998). The social and emotional conditions would not exist to support the sharing of 'difficult to express' tacit knowledge or to share knowledge in a competitive environment. In a 'high care' organisations knowledge sharing is supported:

> …personally held beliefs become a field of active inquiry…(and) because they do not run the risk of endangering future participation in knowledge creation, participants can take more chances in articulating and justifying their beliefs…organizational routines are questioned and changed. Where new knowledge creation calls for it, even (organisational)…paradigms can be reassessed (von Krogh, 1998, p.142).

Care may be cultivated by expecting and explicitly valuing trust and openness, by sharing knowledge though mentoring, and by promoting learning orientated conversations (von Krogh, 1998).

Drawing on Fukuyama (1995), Lesser and Prusak (2000) talk about the importance of social capital in organisations and the role that communities of practice can play in its development. These informal communities provide opportunities for networking and development of trust through interpersonal interactions, improving the social climate. Care may be destroyed through fear

and unjust treatment and isolating people. Where care is destroyed, knowledge creation is pushed into the capture or transaction of explicit knowledge. Tacit knowledge will not be shared (von Krogh, 1998).

Self-trust can also be an important factor. As Isaacs (1999) points out, it takes determination to speak your own voice – the pressures that arise from both in yourself and from your organisation often seem designed to sap your energy – the antidote is self-trust:

> Only as you learn to take seriously the possibility that what you think might in fact be valid for others do you find the confidence and the backbone to share it (Isaacs, 1999, p.162).

2.9.4 Knowledge Creation Needs 'Space'

While individuals need a supportive environment if they are to share their personal knowledge, this is not enough in itself. 'Space' for interaction is also required. Nonaka and his associates suggest that each stage in the knowledge creation process requires an appropriate physical, mental or virtual 'space' which they refer to by the Japanese term 'ba'. This shared space serves as a foundation for knowledge creation (Nonaka, Konno & Toyama, 2001; Nonaka & Nishiguchi, 2001; von Krogh, Ichijo & Nonaka, 2000; Nonaka & Konno, 1998). The social relationships in this space are of great importance in the knowledge creation process (Nonaka & Nishiguchi, 2001; Nonaka & Konno, 1998). Knowledge creation does not simply occur through social interaction, though, but through real-time interaction in specific contexts and this has to be nurtured (Nonaka & Nishiguchi, 2001).

> Knowledge is dynamic, relational and based on human action; it depends on the situation and the people involved rather than on absolute truths or hard facts…all knowledge, as opposed to information or data, depends on its context (von Krogh, Ichijo & Nonaka, 2000, p.7).

This enabling context, or 'shared knowledge space' (von Krogh, Ichijo & Nonaka, 2000) takes different forms at different phases of the knowledge creation process. In the *socialisation* stage, people need opportunity for face-to-face interaction where feelings, experiences and mental models can be shared. Colleagues may be learning from each other by working side by side, or by observation. In the *externalisation* phase, organisational members engage in

dialogue to share the mental models. Through their deliberations they are able to develop concepts and common understandings. *Combination* requires integrating the new explicit knowledge into existing organisational knowledge and collaboratively justifying the new concepts through the organisation. Finally, *internalising* requires the space to translate the new knowledge into practice, enhancing tacit knowledge as a result (Nonaka, Konno & Toyama, 2001; Nonaka & Konno, 1998).

2.9.5 Management for Knowledge Creation

According to Nonaka and Nishiguchi (2001), the task of organisational managers is to enable the emergence of knowledge rather than intervene directly in the knowledge creation process. This involves ensuring that appropriate space is created for the various stages of knowledge creation, the provision of appropriate resources and the fostering of a culture where knowledge can freely emerge (Nonaka & Konno, 1998). While organisations need to address how work environments enhance or inhibit collaboration (Havens & Hass, 2000), the responsibility of the manager is not to create a learning culture so that people will begin to share their knowledge, but to provide the opportunity for people to begin to share ideas about what they believe is important. The sharing itself begins to create a learning culture (Dixon, 2000).

Von Krogh, Ichijo and Nonaka (2000) believe that knowledge creation cannot be controlled, only enabled:

> (This) includes facilitating relationships and conversations as well as sharing local knowledge across an organization…at a deeper level, however, it relies on a new sense of emotional knowledge and care in the organization, one that highlights how people treat each other and that encourages creativity (von Krogh, Ichijo & Nonaka, 2000, p.4).

Managers accustomed to rational decision making and clear lines of authority can find the knowledge creation process confusing and threatening (von Krogh, Ichijo & Nonaka, 2000, p10). According to Morgan (1997, p.94) if intelligence in organisations is seen as "an emerging and evolving phenomenon", rather than as centrally driven, tensions will occur if goals are imposed from 'above'. Coherence without top-down management can be achieved through the establishment of a vision and other reference points that open up a space for action (Morgan, 1997).

If each individual understands the vision and the challenge of the organisation – then each person could embody and act in a way that represented the whole (Morgan, 1997). Learning tied to a vision is purposeful - and the power of a larger vision, personal and shared, is the driving force behind improving schools (Senge et al., 2000). Such a view challenges traditional assumptions about the need for strong central leadership and control, the setting of strong 'top-down' objectives and change 'from above' - ideas that are central to an industrial age managerial mindset, but open to major challenges as the organising principles of the new information age (Morgan, 1997).

Middle managers may emerge as key players in the knowledge creation process, however. They play an important role as they serve as a bridge between the 'ideals of the top' and the often chaotic 'reality' of the front line workers (Takeuchi, 1998). In conversation with Fulmer and Bernard (1998), Senge suggests that managers maintain a given reality while leaders create new realities. This is why organisations need to promote the growth of diversity in leadership.

2.9.6 The Fragility of the Knowledge Creation Process

There is no simple formula which allows organisations to transform themselves in response to rapid changes in their operating environment. For von Krogh, Ichijo and Nonaka (2000), knowledge creation is a fragile process. Organisations can be challenging arenas for creating new knowledge, "…(and) individuals may be reluctant or even unable to accept new lessons, insights or observations" (von Krogh, Ichijo & Nonaka, 2000, p.18).

The creation of knowledge requires the sharing of tacit knowledge. Where there is little teacher interaction, teachers may be apprehensive about openly discussing their practice (Rait, 1995). While the sharing of skills or expertise grounded in experience may be relatively unproblematic, the sharing of beliefs and mental models can be a tremendous challenge, fraught with difficulties. It is the need to publicly explain and justify personal beliefs that makes the knowledge creation process so fragile (von Krogh, 1998).

> Whenever individuals share their knowledge in a group, they must publicly justify what they believe…this can be quite difficult – fraught with self-doubt, fear of going against community norms or ruining

> established relationships, and the overall need to stand up for one's own ideas. In fact the crucial part justification plays in knowledge creation is what makes it such a highly fragile process (von Krogh, Ichijo & Nonaka, 2000, p.22).

Organisational members may be unwilling to discuss their practice or justify its underpinning assumptions, preferring instead to fall back on defensive responses. They may feel that such an enquiry is professionally disrespectful or judgemental – which would have a discouraging effect on dialogue, inhibiting learning (Argyris, 1990).

For Maurer (1996) successful change requires vision and persistence along with courage and the ability to deal with ambiguity. Clearly not everyone in the organisation will feel comfortable with this – some will feel threatened, have doubts and resist – and, from the perspective of the person resisting the change, with good reason (Maurer, 1996). Resistance may take a range of forms including denial, pretending to comply, refusal to engage and unpleasantness. Maurer (1996) warns that attempts to overcome resistance (rather than to work through it) are likely to make the situation worse, increasing resistance while failing to generate commitment and collaborative effort. He suggests that resistance needs to be taken seriously and resistors treated with respect. Keeping calm and focussed, listening and maintaining the dialogue are important strategies for encouraging participation (Maurer, 1996).

The fragility of knowledge creation means it must be carefully supported by a number of enabling activities. It is important that the conversations that form a key part of the knowledge creation process are carefully managed. The social climate of the organisation is also important as knowledge creation will not occur in an atmosphere of fear or distrust (von Krogh, Ichijo & Nonaka, 2000).

Knowledge Creation May be Impeded by the Threat of Change

Within an organisation, there may be individuals who feel that their identity is being threatened by change. This can evoke feelings of anxiety and stress, creating a strong mental barrier to new knowledge (von Krogh, Ichijo & Nonaka, 2000). Such individuals may turn their attention to what they already know and fall back on tasks they feel comfortable with (Scharmer, 2000). Fearing change,

they may be unwilling to learn, and become skilled at defensive routines (Argyris & Schon, 1996; Argyris, 1990, 2001) that have the effect of maintaining a dysfunctional status quo (Fulmer, Gibbs & Keys, 2000). Individuals who are not prepared to discuss their practice or test their perceptions publicly may fall into recursive patterns of thinking of action (Argyris, 1990). Organisations may also engage in defensive routines which protect people from embarrassment or threat and also prevent them from inquiring into the nature of its causes (Argyris, 2001; Argyris & Schon, 1996).

> Nothing could be more detrimental to organisational learning than the process of elevating individual defensive tactics to an organizational routine (Argyris, 2001, p.97).

Such organisations are likely to be engaged in single-loop learning, as genuine learning has been inhibited by their defensive reasoning (Argyris, 2001).

Breaking away from known habits can be threatening, particularly if the new knowledge involves a re-imaging of work. So, while some people in an organisation will see the need to develop and accommodate new knowledge, others will simply find it worrying. They may mentally withdraw from the knowledge creation process if their personal narratives (how they 'story' themselves - Connelly & Clandinin, 1995a) are being undermined or challenged by the new knowledge:

> Maintaining a serious self-image as well as self-respect can be tough when participation in organizational knowledge work dramatically changes the basis for personal narratives (von Krogh, Ichijo & Nonaka, 2000, p.22).

Organisations may resist change because they continue to rely on what worked in the past, even where this is no longer relevant in the current environment (Spinello, 2000). Levitt and March (1996) talk about organisations falling into competency traps, where old procedures continue to be used, though new procedures would lead to better outcomes. Leonard-Barton (1995) points out the potential of core capabilities to become core rigidities, and that organisations can become victims of previous, outdated capabilities. Where an organisation has some knowledge of its problems but does not link this to action designed to bring about change, opportunities for learning are lost and inertia prevails (Pfeffer &

Sutton, 2001). In this "knowing-doing gap" (Pfeffer & Sutton, 2001, p.23), documents may be written, but not put into action - a situation comparable to the difference between espoused theory and theory-in-action (Argyris & Schon, 1996). The former is an explanation or justification of practice and the latter is the theory which is implicit in the practice. Sometimes an organisation's espoused theory says one thing, for example in its formal documentation, but this is not observed in action. The theory in use may remain undescribed or undiscussed because it could be too embarrassing or threatening to admit the gap between the two (Argyris & Schon, 1996). There needs to be a clear link between knowledge and action. Knowledge is not created for its own sake; it must flow into action if it is to be useful. There has to be the willingness and the capacity to act on the knowledge that has been generated (Spinello, 2000).

Lack of Shared Understanding

At an organisational level, the lack of a shared language for discussion may be a barrier to knowledge creation, with the lack of understanding constraining the sharing process. When people unknowingly attribute different meanings to the same events or objects, the conflicts and suspicions that ensue often hamper information sharing (Rait, 1995). Zack (2000) talks about knowledge processing problems arising from equivocality, where several competing or contradictory conceptual frameworks may exist – providing multiple interpretations of the same thing. While individually, each interpretation may be unambiguous, they differ from each other and, reflecting different goals or understandings, they may be mutually exclusive or in conflict (Zack, 2000).

Often organisations do not provide sufficient time for sharing and reflecting on experience (Wah, 2001; Coneau-Kirschner & Wah, 2000; Dixon, 2000). If insufficient time is allocated to the sharing of mental models, agreement may be reached that is not grounded in shared understanding. Organisational members may be nominally in agreement about priorities but have different understandings of what that means (Coneau-Kirschner & Wah, 2000). Two people may have similar assumptions about what something means – but unless these have been made explicit, the assumptions are not shared and their accuracy is not tested (Watkins & Marsick, 1993). Inaccurate assumptions can be made that lead

people to jump to conclusions. Beliefs about what is 'real' need to be brought out into the open (Senge et al., 2000).

> Error occurs in organization because of rapid, inaccurate reasoning, often coupled with the mistaken belief that everyone shares the same meanings…When private meanings are made public, it is possible to examine the thinking that lies below the surface (Watkins & Marsick, 1993, p.77).

The lack of a shared language may also cause problems where new knowledge, developed by one group, is being communicated to different groups across the organisation. This may lead to some initial confusion (Nonaka & Takeuchi, 1995).

2.9.7 Organisational Culture

The culture of an organisation can also be a barrier to knowledge creation where it gets in the way of identifying real needs. It may be the norm not to speak out and or express feelings or frustrations, so negative emotions are not shared (von Krogh, 1998). In such circumstances, individuals are likely to feel reluctant to express contrary views. Yet, as Senge et al. point out:

> …one of the critical acts for a learning school is to develop the capability to talk safely and productively about dangerous and discomforting subjects (2000, p.7).

Also, new suggestions may be dismissed on the grounds that change is unlikely to bring successful outcomes or because previous similar suggestions have failed. This response may stem from an unwillingness to break out of comfortable routines – and stories based on existing knowledge may be used to undermine the legitimacy of the new knowledge (von Krogh, Ichijo & Nonaka, 2000; von Krogh, 1998). Argyris (2001) notes that for the sake of morale or consideration for others, managers often censor what people need to say – depriving them of the opportunity to take responsibility for their behaviour by understanding it:

> (However), as double-loop learning depends on questioning one's own assumptions and behaviour, this apparently benevolent strategy is actually *anti*learning (Argyris, 2001, p.93).

Organisations may develop patterns of interaction that Argyris (1990) described as 'defensive routines'. These become the customary ways of dealing with embarrassment and conflict, preventing organizational learning.

> (People)…often think that they have to be careful about what they say and to whom they say it. There are things that might be said privately, to a trusted colleague, that cannot be said publicly, On the other hand, people sometimes say things publicly that they realise they do not really believe; it is said 'just for show' (Dixon, 1996, p.1).

Another destructive organisational pattern is 'fire fighting' (Bohn, 2001). Learning is inhibited where insufficient time is allocated for problem-solving leading to a situation where there is a lot of activity and resource use but the root causes are never discovered and so problems recur and cascade (Bohn, 2001). In a complex situation is may be difficult to identify the type of problems faced, leading to a situation where the wrong problems may be solved and the right problems not addressed (Roth & Senge, 1996).

2.9.8 Barriers to Organisational Learning

Watkins and Marsick (1993) identify truncated learning, tunnel vision, and learned helplessness as barriers to organisational learning, and therefore to knowledge creation. Organisational learning may be truncated where collaborative efforts are interrupted or only partially implemented, for example, where an idea that takes root in part of an organisation but is not taken up across the organisation (Watkins & Marsick, 1993). This barrier is also noted by Argyris and Schön (1996) who recognise that the learning of an individual or a group may have little impact on organisational thought and action, if it is not spread across the organisation. Tunnel vision is a barrier for organisational learning when members of the organisation are only able to see things from their own perspective and not able to locate themselves in the complexity of the broader situation (Watkins & Marsick, 1993). Learned helplessness occurs when organisational members or groups are rewarded for not taking responsibility for their actions, especially if their efforts at taking some control are resisted or even punished. Groups can also learn to quietly resist top down innovation – just quietly sitting tight until the change blows over (Watkins & Marsick, 1993). As Ceroni and Neufeld (1994) note, innovative programs in schools tend to come and

go but the effect is cumulative on teachers, affecting their attitudes. Teachers may be angry, resistant, cynical, feel hopeless or even betrayed by administrators when yet another innovation fails. Each time this situation occurs teachers become less willing to give their attention and loyalty to educational innovation (Ceroni &Neufeld 1994). It is demotivating for teachers when their situational knowledge is not given recognition or valued.

Barriers to organisational learning inherent in the work of teachers include isolation from other adults, time constraints, reduced resources and increasing work demands. As Rait (1995, p.94) comments, "these are not the raw materials from which organizational learning can easily be forged".

This section has explored the insights offered by the literature on factors influencing the knowledge creation process. It provides a basis for exploring the factors that have both encouraged or constrained the creation of contextualised professional knowledge in the case study schools.

2.10 Emotion in Organisations

Throughout this chapter, the importance of positive social relationships has been a recurring theme: in the success of professional learning communities, in the knowledge creation process, in the establishment of systems of distributed cognitions and in the cultures that support organisational learning. However, emotion has such an impact on the knowledge creation process that it needs to be examined, more specifically, and in some depth. Emotion plays a key role in organisational life:

> …as ways to enhance community and interrelatedness. Work feelings…emerge from human interaction, aid in co-constructing meaning, build mutual understanding, and provide options for alternative forms of organising (Putnam & Mumby, 1993, p.55).

Emotion influences how organisational members negotiate their shared reality (Fineman, 1993; Putnam & Mumby, 1993) and has an impact on social climate. It is central to the cognitive dimension of tacit knowledge, connectedness, and to change, impacting on the individual and the group, the processes of organisational learning and on knowledge creation. Feelings of efficacy, stress and burnout play

a significant role in how organisational learning and knowledge creation may proceed in the professional learning community of a school.

Schools are not rational organisations (Patterson, Purkey & Parker, 1986) and, for Fineman (1993), once the facade of rationality is stripped from organizational goals, purposes, tasks and objectives, a veritable explosion of emotional tones is revealed. Emotion also provides a way of knowing that is different from rationality, a way that indicates its importance in tacit knowledge:

> …emotion produces information grounded in personal experience, mutual understanding, and community. Emotion comprises sentiments about what is good, right, and possible. Sensitivity to other people's feelings is essential for understanding diversity in the workplace and may form the foundation for organizational change (Putnam & Mumby, 1993 p.55).

It can therefore be argued that a positive emotional climate supporting individual and group interaction may open up ways of knowing that will encourage knowledge creation. Conversely, negative emotions in an organisation may inhibit organisational learning and act as a barrier to knowledge creation. Before exploring this topic in more detail, it is appropriate to consider how feelings of both individual and collective efficacy play an important role in a school's capacity to engage in organisational learning and knowledge creation.

2.10.1 Efficacy

How teachers feel about themselves and about their ability to succeed, both individually and collectively, is relevant to the knowledge creation process. School renewal efforts are more likely to succeed where teachers individually have a positive self-image and collectively believe in their power to achieve success. Individual and collective efficacy, along with self-esteem, are therefore important concepts to consider.

People make judgements about their skills and capabilities, tending to take on tasks and situations they believe they can handle and to avoid those believe they cannot (Bandura, 1986). Individuals with high self-esteem, are likely to remain optimistic and maintain their motivation when faced with difficulty – tending to work harder to achieve their goals if they are not initially successful (Judge &

Bono, 2001). However, in the face of difficulty, people with low self-esteem are likely to feel helpless, to lack persistence, lose motivation and lower their standards or give up (Judge & Bono, 2001; Bandura, 1986). This kind of response can impact on opportunities for learning (Bandura, 1986).

> Those who judge themselves as inefficacious…dwell upon their personal deficiencies and cognize potential difficulties as more formidable than they really are…such self-referent misgivings create stress and undermine effective use of the competencies people possess by diverting attention from how best to proceed to concern over personal failings and possible mishaps (Bandura, 1986, p.394).

Bandura (1986) further suggests that people form views on their efficacy through such means as feedback on their performance, observing others, and being affirmed by others. They also tend to produce their own futures as a result of the views they form.

2.10.2 Collective Efficacy

Individuals with feelings of efficacy believe in their ability to succeed. Groups in organisations may respond similarly, their feelings of collective efficacy having an impact on their approach to problem solving and their achievement. Teachers with a shared sense of responsibility are more likely to work collectively to produce results (Bandura, 1997).

> Perceived collective efficacy will influence what people choose to do as a group, how much effort they put into it, and their staying power when the group efforts fail to produce results…inveterate self-doubters are not easily forged into a collectively efficacious force (Bandura, 1986, p.449).

Teachers who believe they can collectively make a difference to their students' learning are likely to promote a collective sense of self efficacy – while teachers who believe there is little they can do to overcome the negative influences of adverse social conditions are likely to undermine one another's sense of efficacy (Bandura, 1997). The kind of leadership displayed by the principal can also make a difference to the belief that teachers have in their power to overcome obstacles to educational attainments (Bandura, 1997).

2.10.3 Negative Emotion in Organisations

While a positive climate and feelings of efficacy may support organisational learning and change, a negative emotional climate can lead to the problems alluded to earlier. Teachers feeling threatened by change may risk concealing their real feelings preferring instead to pretend to comply with organisational expectations (Fineman, 1993), expressing agreement then continuing as before once back in the safety of their classrooms (Pellicer & Anderson, 1995). This kind of action demonstrates the potential for difference between a teacher's espoused theory (stated belief) and their practical theory-in-action which guides classroom practice (Argyris & Schon, 1996; Sanders & McCutcheon, 1986).

Where there is a culture of isolation in the school is it difficult for teachers to develop norms of collegiality (Rait, 1995). Barth (1990) compares this kind of professional existence to young children engaged in parallel play in a sand pit – not risking the professional interaction with others but at the same time losing the opportunity to learn from them. Teachers working in isolation may be unsure of what is expected of them or what their colleagues are doing and become anxious about sharing their practice, choosing to present an image of success rather than risk making themselves vulnerable by sharing their doubts and their problems (Hunt, 2000; Hargreaves, 1994). Where teachers are not able to be themselves their learning will be inhibited and there may be compelling reasons – conscious or unconscious - for them not to accurately represent what they truly believe or value (Rokeach, 1968). As Nias points out:

> …a culture of individualism tends to increase the emotional stress for its members by fostering an illusion that others are coping and that one's own fears are born of a unique incompetence (1999, p.235).

Where change is underway, and there is an expectation of collaboration, the experience of moving from a culture of isolation to a culture of collaboration may also cause significant anxiety. Teachers may find it very challenging and stressful to take on a broader professional role, believing they do not have the capacity or the confidence to meet the demands of these new ways of working (Smylie, 1999). Discussing pedagogy and educational philosophy with peers who may not share basic assumptions can be stressful and threatening (Rait, 1995). For some teachers, the move from individualisation towards collaboration, and from

hierarchies to teams can be so stressful that they choose to retire (Woods, 1999). Taking on these new roles may also bring teachers into conflict with the traditional role of the school administration (Leithwood et al., 1999), another potential source of stress.

Where the stresses of a situation become acute, the negative emotions of shame, blame and guilt have the potential to impact significantly on organisational learning and knowledge creation. A seemingly innocuous emotion, organisational nostalgia, may also inhibit learning. Gabriel (1993) argues that looking back to a 'golden age' can significantly influence the way organisational members interpret current events. It may also serve the purpose of allowing current organisational members to retain some sense of self-worth – taking heart from earlier glories.

Shame is a powerful negative emotion, potentially more hazardous to knowledge creation than guilt, and often coupled with the tendency to blame (Tangney, Burggraf & Wagner, 1995). Involving both harsh self-judgement and the perception of being negatively evaluated and harshly judged by others (Lutwak & Ferrari, 1997; Tangney, Burggraf & Wagner, 1995), shame may involve feelings of worthlessness, incompetence, powerlessness and being totally exposed (Lindsay-Hartz, de Rivera & Mascolo, 1995; Tangney, Burggraf & Wagner, 1995). It can manifest itself in hostile defensive anger, depression, disdain, and humiliation (Hunt, 2000; Tangney, Burggraf & Wagner, 1995). The perception that an organisation is failing may prompt feelings of inadequacy and shame among organisational members (Hunt, 2000). Teachers may deny the existence of failures over which they feel they have no control - for example, the failure of leadership:

> …to admit that such problems exist represents a call to action. Inadequacy in the face of such a call could represent a catastrophic threat to self-esteem. Shame anxiety can provoke an unconscious denial reaction in an individual, and perhaps a team, preserving self-esteem (Hunt, 2000, p.5).

While guilt is a less overwhelming, less devastating emotion than shame, it has the potential to impact significantly on knowledge creation. It arises from a negative evaluation of a specific behaviour, rather than the 'whole' self (Tangney, Burggraf & Wagner, 1995). Teachers may experience guilt for a wide range of

reasons, for example, if they feel they have let someone down, not done something that was expected or not done the 'right thing' (Lindsay-Hartz, de Rivera & Mascolo, 1995; Hargreaves, 1994). In moderation, guilt may provide motivation for positive change (Hargreaves, 1994) as people feeling guilty often want to put things right and are motivated to remain constructively engaged with their colleagues (Tangney, 1995). Those experiencing shame, however, are more likely to focus on feeling negative about themselves and to adopt avoidance strategies (Lindsay-Hartz, de Rivera & Mascolo, 1995; Tangney, 1995).

2.10.4 Teacher Stress and Burnout

While a range of negative emotions may impact on a school's capacity to engage in organisational learning and knowledge creation, the extreme emotions associated with teacher stress and burnout are also highly significant. Although stress and burnout affect individuals, their consequences can be felt more widely within an organisation.

Causes of Teacher Burnout

Teacher burnout, a response to chronic stress, frequently arises out of emotional exhaustion caused by discipline problems and poor classroom climate (Byrne, 1999; Huberman & Vandenberghe, 1999; Leithwood et al., 1999). Schools with a socially supportive environment may help to alleviate some of this stress (Byrne, 1999; Rudow, 1999). The problem can be intensified, however, where there is low socio-emotional support from peers and the principal, where teachers are isolated or there is negativity, interpersonal conflict and poor communication (Byrne, 1999; Huberman & Vandenberghe, 1999; Leithwood et al., 1999; Rudow, 1999; Schwarzer & Greenglass, 1999; Smylie, 1999). Characterised by emotional exhaustion, increased depersonalisation (negative, cynical attitudes) and feelings of ineffectiveness (Byrne, 1999; Huberman & Vandenberghe, 1999), teacher burnout may impact on performance, sickness rates, emotional states, social behaviour and interpersonal relationships (Rudow, 1999). The teachers most at risk are those whose personal identity is inextricably bound up with their teacher role (Woods, 1999). For highly committed teachers, personal self-esteem is

derived, to a large extent, from their professional identity (Lens & de Jesus, 1999).

Organisational structures can add to teacher stress and burnout in significant ways. Work overload, pressure and conflicting demands on time, along with neutral support from the administration can create significant conflict for teachers (Byrne, 1999; Leithwood et al., 1999; Rudow, 1999; Smylie, 1999). Administrative structures can mitigate against risk-taking and inquiry (Rait, 1995). Role ambiguity can arise where there is uncertainty about policy implementation or where change is required but not understood or where teachers do not feel their work is valued (Byrne, 1999; Leithwood et al., 1999; Rudow, 1999). As Smylie notes:

> …role ambiguity is generally associated with vague organisational goals, role definitions and expectations of performance. It is associated with uncertainty concerning what a person must do to perform their role effectively (Smylie, 1999, p.62).

Situations where teachers, expected to perform at a high level, are not supported by organisational structures, can lead to exhaustion and cynicism, declining efficacy and a decreasing ability to cope with change (Leiter & Harvie, 1998). Stress may be heightened in rigid hierarchical structures, where teachers have little input into decisions that directly affect their worklife, and there is little opportunity for them to take action (Byrne, 1999; Leithwood et al., 1999; Rudow, 1999). The principal may increase stress and burnout in a range of ways including being authoritarian and not allowing teacher participation in decisions, having unclear expectations of teachers; not providing feedback on their performance and not following tasks through to completion (Leithwood et al., 1999). Principals themselves may experience chronic stress and burnout brought on by factors such as work and responsibility overload, interpersonal conflicts, and parental demands (Friedman, 1999). Change may also be particularly threatening to those principals who rely on the authority traditionally associated with their position and who feel their identity and sense of security are at risk with more collegial ways of working (Sikes, Measor & Woods, 1985).

How stress is experienced is influenced by individual professional identity and the professional environment (Kelchtermans, 1999). Critical phases in school

development may be experienced and understood differently by different teachers - because of complex interactions between teachers (with their particular identity) and contextual demands (Kelchtermans, 1999). Some teachers may be motivated to bring about change while others may believe their competence is called into question. Inquiring into practice and exploring professional selves can be stressful and threatening for teachers. Some teachers cope with this, learning and developing at a result. Others are less successful (Kelchtermans, 1999). This is interesting when considered in conjunction with culture as a cognitive process – with variable individual responses to events within a common framework of interpretation.

Variables Reducing Burnout

There is an important link between feelings of self-efficacy and teacher burnout (Friedman, 1999; Schwarzer & Greenglass, 1999; Bandura, 1997). Schools can become healthier (less stressful) environments for teachers if feelings of self-efficacy can be improved (Friedman, 1999). This means improving teachers' belief in their capacity to overcome difficulties through persistence and a range of strategies (Schwarzer & Greenglass, 1999). This may be achieved through building a sense of community in schools, augmenting teachers' sense of professionalism; improving principals' managerial skills and, in particular, by building better relationships among teachers (Friedman, 1999, pp.174-175). A supportive social and emotional environment in a school can help to alleviate feelings of stress (Leithwood et al., 1999; Schwarzer & Greenglass, 1999) with teachers sharing responsibility and offering concern, support and practical help to each other when times are difficult (Nias, 1999; Hargreaves, 1994). Principals may reduce teacher burnout by providing support for teachers, particularly emotional support, by making expectations clear, providing feedback on performance and allowing participation in decision making (Leithwood et al., 1999).

2.10.5 Efficacy, Stress, Burnout and Change

Individual and collective efficacy, stress and burnout are factors significantly influencing how individual teachers may approach and experience the change

process in schools. Some teachers may feel competent and willing to manage and accept change while those experiencing stress and burnout may not share this confidence (Leiter & Harvie, 1998), undermining the success of school restructuring (Leithwood et al., 1999). Where stressful conditions exist in a school, change may exacerbate the situation or it may bring a welcome relief, depending on the nature of the change and on the individuals who experience it:

> It is distinctly possible that certain types of change…would work to alleviate sources of deleterious stress in teachers' work…(when changes)…clarify teachers' roles, thereby reducing role conflict and ambiguity…Likewise change need not introduce conflicts into teachers' values and assumptions. Change can bring work more into line with individual's value systems, thus alleviating a source of …stress (Smylie, 1999, p.79).

This section, dealing with emotion in organisations, has recognised the highly affective nature of teacher engagement in knowledge creation. It provides a basis for interpreting the impact that emotion may have on the knowledge creation process. More detailed consideration of the concepts of both individual and collective efficacy, of positive and negative emotion, teacher stress and burnout became a necessary part of this inquiry as the data indicated that emotion had a significant impact on the knowledge creation processes in the case study schools.

2.11 Conclusion

This study rests on the premise that schools, caught in the transition between the industrial age and the knowledge age, are facing many challenges. The world is changing rapidly and schools have a central role in both individual and national success. School renewal is essential – but this cannot be mandated (Senge et al., 2000).

Barth (1990) talks about the kind of school renewal that depends on 'list logic', resting on the belief that if the characteristics of high achieving schools can be described, they can be emulated (through policy and regulation) by other less successful schools, leading to school improvement. Unfortunately, the approach does not take into account how those schools came to be effective, nor does it recognise the capacity of schools to improve themselves (Barth, 1990). It is a view:

> …(that) school improvement…is an attempt to identify what school people should know and be able to do and to devise ways to get them to know and do it (Barth, 1990, p.38).

Sammons, Hillman and Mortimore (1995) provide a good example of this kind of approach, providing a list of the features and characteristics of an effective school. There is only a limited overlap between these and the characteristics of a knowledge creating school described by David Hargreaves (1999). According to Hargreaves (1999 pp.126-127), schools that successfully engage in knowledge creation are generally oriented to continual improvement; sensitive to stakeholders and to changes in the external environment; coherent and democratic. Additionally, knowledge-creating schools generally value teacher expert knowledge; teacher networks and teams; regular opportunities for reflection, dialogue, enquiry and networking in relation to professional knowledge and practice; and have a culture that fosters experimentation without blame. Professional knowledge creation is seen as a schoolwide activity – which is coordinated, resourced and monitored.

Drawing on the more detailed the overview of IDEAS presented in Chapter 1, it is important to note that there is limited overlap between the image of the successful school portrayed by the Research-based Framework (Crowther et al., 2001) and the effective schools characteristics. IDEAS is not grounded in lists of successful practices that may be replicated. According to Crowther et al. (2001), IDEAS is centred on the work of teachers. It builds on successful practices within individual schools, engaging the professional community in the creation and implementation of contextualised knowledge. There is significant overlap, however, between the IDEAS image of the successful school and Hargreaves' (1999) description of the characteristics of the knowledge creating school. There are clear parallels between his description of the processes operating in the knowledge creating schools and the *ideas* process. The importance of context and of process is taken into account in both. Neither are concerned with what Fullan (1999, p.15) describes as "acquiring 'best practice' as products" but are engaged in generating new knowledge to enhance school outcomes.

It is significant that IDEAS is presented (Crowther et al., 2001) as a school renewal process that reflects the move (described by Capra 1997) away from

thinking about knowledge in reductionist, mechanistic terms, towards a more holistic view of knowledge as a network or a pattern in a web of relationships. It represents a shift from school renewal tied to codified, abstracted knowledge – where meaning has been lost because the knowledge has been extracted from its context – to a school renewal process which recognises that change arises from knowledge developed within its context through networks of relationships, and is linked to action

Recognising the organic nature of school change and, therefore, the significance of context, Senge et al. (2000) notes that it is not possible to just 'roll out' a program from one successful school to other schools (Senge et al., 2000, p.273). They suggest that the machine metaphor which guided schools in the industrial age needs to be replaced with a 'living systems' metaphor which recognises that reality is built on relationships not things – this opens up new ways of understanding knowledge and new possibilities for change. IDEAS as a school renewal process is built on such an understanding.

Chapter 3: Methodology

3.1 The Research Orientation of the Inquiry

This inquiry rests on a view of knowledge not as objective reality waiting to be discovered, but as constructed through social processes. The methodology used to inquire into knowledge creation is grounded in the interpretive paradigm which contains assumptions about the subjective nature of reality, the contextualised nature of knowledge, and the importance of gaining understanding of the complexity of lived experience from the perspective of those who live it (Cohen, Manion & Morrison, 2000). Given that research is concerned with the production of knowledge, a fundamental consideration for researchers is what they believe about the nature of reality and of knowledge production, as this will have a significant impact on the approach taken to the research (Cohen, Manion & Morrison, 2000; Guba & Lincoln, 1998; Merriam, 1998). Three commonly identified orientations to the qualitative research process are the positivist, interpretive and critical approaches (e.g. Cohen, Manion & Morrison, 2000; Merriam, 1998; Carr & Kemmis, 1986). Others (e.g. Guba & Lincoln, 1998; Evers & Lakomski, 1996; Evers & Lakomski, 1991), add post-positivism as a fourth possible choice for informing and guiding the research process.

This study is qualitative, situated within the broad framework of interpretivist inquiry. According to Schwandt (1998), interpretivism, along with constructivism, belongs to "a loosely coupled family of methodological and philosophical persuasions (which are)… best regarded as sensitising concepts". Interpretivist inquiry focuses on situation specific meanings constructed by the social actors, recognising the complex world of their lived experience from their point of view (Cohen, Manion & Morrison, 2000; Denzin & Lincoln, 1998a; Merriam, 1998).

Within the interpretivist framework, a collective case study approach has been used to explore the generation of knowledge in schools engaging in a process of whole-school renewal. The focus of the inquiry is how a school renewal process was experienced by teachers in three different settings. It seeks to recognise the uniqueness and complexity of the context in each setting, the diversity of participant perspective and the meaning that was constructed. In acknowledgment

of the value of each case, understandings of knowledge creation emerging from each setting are considered before consideration is given to tentative across-case generalisations.

Denzin and Lincoln (1998a) describe the complex history of qualitative research in the twentieth century by describing five historical 'moments' from the traditional period in the first half of twentieth century, through the modernist age, a period of blurred genres, into the crisis of representation of the 1980s and finally the present post-modern period which is "…characterised by a new sensibility that doubts all previous paradigms" (1998a, p.2). They argue that each of the five moments operates simultaneously in the present. This opens up many choices to the researcher, for example, the postmodern sensibilities have allowed me to locate myself within the research process and to be present in the text of this report. Another legacy of the more recent moments is an awareness of the pitfalls of representing others. In this inquiry, I have sought to retain the integrity of the data in presenting the stories of the schools constructed from the accounts of the participants. I have then taken a more active role interpreting the phenomena observed, constructing my own meaning, and explicitly take ownership of the perspectives on knowledge creation that emerge from each case. This is consistent with Schwandt's assertion that to understand the world one must interpret it:

> To prepare an interpretation is itself to construct a reading of these meanings; it is to offer the inquirer's construction of the constructions of the actors one studies (Schwandt, 1998, p.22).

Again echoing Denzin and Lincoln (1998a), the following account of the research process in three school settings illustrates that I have produced a *bricolage*, "a pieced- together, close-knit set of practices that provides solutions to a problem in a concrete situation" (p.3).

3.2 The Research Problem

This study investigates the dynamics, implications and effects of knowledge generation in three schools engaged in a process of whole-school renewal. The following question was formulated to focus the inquiry:

Focus Question:

What understandings of 'knowledge creation' emerge from the experiences of professional learning communities engaged in a process of whole-school renewal?

The concept of knowledge creation is the heart of the inquiry, acting as a frame of reference for the investigation and a filter to help pick out salient aspects of the whole (Sturman, 1994). Other notions clustered round this central idea include professional learning community and concepts about types of learning (individual, group, distributed), types of professional knowledge (tacit, practical, public and contextualised) and images of teacher professionalism. The focus question, grounded within this conceptual framework, was used to generate the following questions to guide the research in each of the case study schools:

Research Question 1:	*Through what processes can professional learning communities be said to 'create' new knowledge?*
Research Question 2:	*What kinds of individual and organisational learning support the whole-school reform effort?*
Research Question 3:	*What are the factors that encourage and constrain the creation of knowledge and its translation into action?*

3.3 The Research Strategy: Case Study

A case study approach has been used as the research strategy for this inquiry. According to Stake (1998) and Sturman (1999), a case may be described as a bounded system characterised by a wholeness or integrity and the integration of its parts. It could be an event, a person, a group, an institution, or a phenomenon (Gillham, 2000; Sturman, 1999; Nisbet & Watt, 1984) systematically studied as "an instance in action" (Adelman, Jenkins & Kemmis, 1984) or to illustrate a more general principle (Nisbet & Watt, 1984). In this inquiry, the bounded system is the school and the instance in action, the generation of professional knowledge through engagement in a process of whole-school renewal.

Many different types of case study have been identified including exploratory, narrative, theory testing, ethnographic, historical, psychological, sociological,

action research, evaluative and educational (Bassey, 1999; Merriam, 1998; Sturman, 1994; Yin, 1994). Taking a somewhat different approach, Stake (1998) identifies intrinsic, instrumental and collective case studies. The first of these is the study of a case interesting in its own right, the second is intended to gain insight into something else, and the third represents groups of individual studies undertaken to gain a fuller picture. Stake's (1998) classification is helpful in illuminating key features in this inquiry where the intrinsic worth and interest of each case is recognised, the broader issue of knowledge creation is being explored and the three cases reported help to provide a fuller picture of the phenomenon. Three studies were carried out simultaneously, an approach echoed in Stake's observation that "We may simultaneously carry on more than one case study, but each case study is a concentrated inquiry into a single case" (1998, p.87). My first priority has been to understand each of the three cases; all interesting to me in their own right. This led into the more instrumental focus of the study, consideration of knowledge creation in each case and, more tentatively, across-case.

Use of a case study approach has allowed the particularity of each setting to be explored. It has enabled the exploration of real life examples of knowledge creation which recognise the lived experience of the participants and the importance of context. As Cohen, Manion and Morrison observe:

> …contexts are unique and dynamic, hence case studies investigate and report the complex, dynamic and unfolding interactions of events, human relationships and other factors in a unique instance (2000, p.181).

The approach recognises that many factors interact to produce the unique character of each case. It allows specific features of each school to be identified and used to aid understanding of the way events have unfolded (Thomas, 1998; Nisbet & Watt, 1984). At the same time, recognition may be given to the way these events have been experienced differently by different participants in each setting. The case study allows a detailed description of these events to be blended with an analysis of what they mean (Cohen, Manion & Morrison, 2000). Importantly, too, the significance of an event or an insight within a case study is not bound to the frequency with which it occurred.

> Case studies, in not having to seek frequency of occurrences, can replace quantity with quality and intensity, separating the *significant few* from the *insignificant many* instances of behaviour. Significance rather than frequency is the hallmark of case studies, offering the researcher an insight into the real dynamics of situations and people (Cohen, Manion & Morrison, 2000, p.185, emphasis in original).

The following table draws on Cohen, Manion and Morrison's (2000) account of the elements of a case study. It has been modified with the addition of explanatory comments (in italics) relating to this inquiry.

Table 1: Elements of Case Study Style (with explanatory notes relating to this study)

	Purposes	***Foci***	***Key Terms***	***Characteristics***
CASE STUDY	To portray, analyse and interpret the uniqueness of real individuals and situations through accessible accounts: ▪ *through telling the story of each school from the accounts of the participants* ▪ *through recognising diversity of perspective within the settings* To catch the complexity and situatedness of behaviour: ▪ *recognising the uniqueness of each school* To present and represent reality – to give a sense of 'being there': ▪ *representing the accounts of others with integrity* ▪ *acknowledging my own presence in the text*	Individuals and local situations Unique instances A single case: ▪ *this inquiry focuses on 3 individual cases* Bounded phenomena and systems: ▪ *the school as a bounded system* ▪ *IDEAS Teams within the schools*	Individuality Uniqueness In-depth analysis and portrayal Interpretive and inferential analysis Subjective Descriptive Analytical Understanding specific situations Sincerity Complexity Particularity	In-depth, detailed data from wide data source Participant observation Non-interventionist Empathetic Holistic treatment of phenomena: ▪ *though only aspects of the story are told* What can be learned from the particular case: ▪ *and what may be learned from the three cases*

Adapted from Cohen, Manion and Morrison (2000, p.79)

3.3.1 Selection of the Case Study Schools

The study centres on knowledge generation in schools where teachers were assumed to be working together as professional learning communities. This

presented a potential problem as it was not possible to demonstrate in advance which schools displayed the structural and social characteristics of professional community as described in the literature (e.g. Scribner et al., 1999; Hord, 1997; Louis, Marks & Kruse, 1996; Kruse, Louis & Bryk, 1994). Instead, five schools were identified as potential case study schools on the basis of their voluntary participation in IDEAS – the school renewal process described in Chapter 1. The willingness of teachers to collaboratively envision a better future and develop a shared schoolwide pedagogy which supported that vision seemed a good indicator of a school where the staff were operating as a professional learning community. As Stake (1998) points out, it is not always possible to select the sample by particular attributes and the highest priority should be given to having the opportunity to learn. While it was not possible to predict to what extent each school was operating as a professional learning community, the sample selected took balance and variety into account, and provided fertile ground for learning.

My original intention had been to work with three case study schools – two that had been pilot schools for IDEAS and the third, an independent school that had commenced IDEAS during 1999. The sample was subsequently increased to include two schools from a new cohort joining the project in 2000. This provided five diverse sites as described in Table 2.

Table 2: The Five Case Study Schools

School	Location	Type	Year Levels	Enrolment	Commenced IDEAS
Willowbank	Regional Town	State High School	8-12	394	1998
The Grove	Rural	State P-10 School	Pre-10	155	1998
Holy Cross	Regional City	Lutheran Primary School	1-7	145	1999
Rainbow Terrace	Urban	State Primary School	Pre-7	376	2000
Clearview	Urban	State Primary School	Pre-7	574	2000

Data were gathered in all five case study schools (whose names have been changed to maintain anonymity). In recognition that it was beyond the scope of this study to report on all five of these cases, three representative sites were selected: Willowbank State High School, Rainbow Terrace State Primary School, and Holy Cross Lutheran Primary School. This was the maximum number

feasible to combine the necessary depth with the possibility of some subsequent generalisation, maintaining the unique specific value of each case while retaining the possibility of drawing out some broader findings. The reduction allowed the final selection of schools on a more informed basis – once data had been gathered about the dynamics of knowledge creation in the professional community in each case. The diversity of the larger sample was maintained, with urban and rural settings, state and independent schools, primary and secondary levels all represented. The sample size of three cases is consistent with an interpretivist inquiry, which is exploratory in nature. Given the complexity of the study, it would have been feasible to carry out a single case study. The decision to study several cases was deliberately made, however, to allow each to be studied in sufficient depth while recognising that generalisations may be made from three cases with greater confidence than from one (Thomas, 1998).

3.4 Method of Data Collection

Case study methodology is eclectic and various methods may be used to collect data including interviews, observation, field studies, artefact and document collection (Hamel, with Dufour & Fortin, 1993; Adelman, Jenkins & Kemmis, 1984). Mindful of the need to "...(attend) to the detail, complexity, and situated meaning of the everyday world" (Schwandt, 1998), all of these have been employed in this inquiry, with slight variation between settings depending on the particular circumstances. In all three cases, data were primarily collected through individual in-depth interviews, supplemented with group interviews, and through participant observation. Observation particularly focused on IDEAS-related professional development activities. While my role in the broader IDEAS Project influenced the degree of my participation within particular sites and at different stages in the process, there was no time when I sought to stand aloof from group activities (Cohen, Manion & Morrison, 2000). The main documentation collected from each school related to the *ideas* process, though this was supplemented with other policies, plans and reports where these provided relevant background material. Particular attention was paid to the school visions and their schoolwide pedagogies, as these represented artefacts in the knowledge creation process. The diagnostic inventory data also provided a rich source of information.

3.4.1 Interviews

Qualitative research interviews may be described as conversational encounters with a structure and a purpose (Kvale, 1996; Powney & Watts, 1987). They are an intentional way of learning about people's feelings, thoughts and experiences and about different aspects of their lived everyday world (Warren, 2002; Kvale, 1996; Rubin & Rubin, 1995), understood from their point of view (Cohen, Manion & Morrison, 2000). They recognise the diversity and complexity of the life world and that data are not something "external to individuals" (Cohen, Manion & Morrison, 2000, p.227). While qualitative interviews may be conversational, they are more than ordinary, everyday conversation. The interviewing requires careful questioning and intense listening for the meaning of what is said (Rubin & Rubin, 1995). Interviewers need to be open to new and unexpected phenomena, to be curious about and sensitive to what is said (Kvale, 1996). They involve more than technical skills. There is an art in appreciating the individual dynamics of each interview situation (Barone & Switzer, 1995).

Kvale (1996) illuminates two different approaches to qualitative research interviews through the use of metaphor. He talks of the interviewer as miner or the interviewer as traveller. The miner metaphor carries within it an understanding of knowledge as "nuggets of essential meaning" waiting to be unearthed by the researcher (p.2). In contrast, the traveller wanders through the landscape and enters into conversations with the people encountered. The traveller can deliberately seek specific topics and will ask people to tell their own stories of their lived world. This will not only lead to new knowledge – it is likely to change the traveller as well (Kvale, 1996). I have been a traveller throughout this inquiry and not a miner.

These two metaphors represent different concepts of knowledge formation. The miner views knowledge as waiting to be discovered, the traveller sees it as being constructed. For Holstein and Gubrium (1995), the view that knowledge is 'extracted' from the respondent, ignores the most fundamental epistemological questions: "Where does this knowledge come from?" and "How is it derived?" (p.2). They reject the idea of the interview conversation as "a pipeline for transmitting knowledge" (p.3) arguing instead that knowledge is socially

constructed, so both the researcher and the respondent are active in the process. If all interviews are interactional events and meaning emerges from the interaction, it becomes all the more important to understand the overall text of the conversation, of seeing the meaning in its context (Rubin & Rubin, 1995). In this way internalised understandings may be explored in the context of engaging in conversation.

The view of research interviews as a move towards generating knowledge between people (Kvale, 1996) with both the respondent and the researcher as active participants (Holstein & Gubrium, 1995), raises the spectre of interviewer bias. As a response, Ruben & Ruben (1995) suggest 'conversation with care', recognising that the interviewer can be conversational without trying to influence the respondents by imposing a view on them. It is possible to probe responses without being directive or judgemental (Barone & Switzer, 1995). Respondents may be led towards certain themes in their life world, but not to certain opinions about those themes (Kvale, 1996). Clearly, the researcher forms a relationship with the participants, particularly when interviewing over time. It is not necessary to remain distant and emotionally uninvolved, but to strike a balance between friendliness and objectivity (Wragg, 1984), though this may be better described as a knowing subjectivity. The success of this depends on the establishment of trust between the interviewer and interviewee.

3.4.2 Phases of Data Collection

Data were formally collected in three broad phases over a twelve-month period from November 1999 to November 2000.

Phase 1: Familiarisation

Phase 1 involved initial data gathering to develop familiarity with the settings and some initial understanding of the particulars of each case. Data were gathered through:

- semi-structured interviews with teachers exploring individual perceptions of school context and school culture, including professional relationships. Teacher learning and generation of knowledge within the school were explored, particularly in relation to IDEAS (see Appendix 2);

- purposeful conversations and conversational encounters. These were recorded as field notes as soon after the encounter as practicable;

- observation of staff development activities and teacher interaction both informally (e.g. staff room) and formal (e.g. staff meeting, mentoring). Informal interaction was recorded in field notes. Sessions involving formal activities were audio taped, with the permission of the staff involved. The audio tapes were later transcribed;

- examination of documentation, particularly in relation to IDEAS.

Phase 2: Tracking IDEAS over time

Tracking the schools' engagement with IDEAS over time varied from case to case depending on the stage of involvement and particular path being taken through the *ideas* process. Where possible, I observed pupil free days and staff meetings devoted to IDEAS activities as well as IDEAS Management Team meetings. In addition, I maintained contact with the school facilitators at facilitator training days.

Phase 3: Deepening the inquiry

The inquiry was deepened though:

- follow up (semi-structured) interviews – considering (in greater depth) aspects of the professional community and its learning. This involved exploring a number of areas, particularly in relation to IDEAS (see Appendix 3);

- focus groups or semi-structured interviews to explore emerging issues and to reflect as a group (examples of areas of focus for these meetings are listed in Appendices 4-6).

As the study proceeded, this data collection plan was moulded to fit with the circumstances of each case. The phases outlined provided a good starting point, used as a guide not a script, to allow for the give and take of the interview process (Holstein & Gubrium, 1995; Patton, 1990). In the course of data collection, some opportunities emerged which provided scope for further discovery. As an example, some participants closely involved in the facilitation or management of

the *ideas* process were interviewed more frequently than had originally been planned. In this regards my involvement in the IDEAS Project helped increase my opportunities for data collection.

Individual interviews were conducted with each participant at least once in order to gain insights into personal thoughts and experiences. All were audio-taped, with the permission of the interviewee, and all the tapes were subsequently transcribed. The interviews were carried out within the schools, in whatever private area was available, their tone conversational, friendly and relaxed. While all the general topics for discussion were covered, the order was determined by the way the particular interview conversation unfolded. This 'response guided' approach (Thomas, 1998) allowed the respondent to talk about their perceptions, influencing the flow, substance and depth of the conversation within the general topics. Generally, interviews lasted approximately forty-five minutes. Where this was insufficient, for example with a key participant, extra time was negotiated. Near the end of the allocated time, interviewees were offered the opportunity to raise any other points. This often produced additional insights, opening up new areas for discussion.

While the interviews were conversational in tone, they ranged through the topics I had pre-selected. I did not seek to impose my views, but to guide and seek understanding. It is important to acknowledge that as the interviewer I was an active participant, helping to construct the meaning which emerged through the flow of the dialogue in the interview. The conversations were conducted with care: trust and curiosity were also powerful factors (Cohen, Manion & Morrison, 2000).

3.5 Data Collection in the Case Study Schools

3.5.1 Holy Cross Lutheran Primary School

My association with Holy Cross commenced in mid-1999 at the start of the *Into the Future* project. I provided some external facilitation support and was involved in a series of staff workshops and IDEAS meetings during Semester 2 of that year. At the start of the following year, all the teachers I had worked with agreed

to participate in the research project. Data collection at Holy Cross is summarised in Table 3.

Table 3: Data Collection at Holy Cross Primary School

Timing	Data Collection
July – November 1999	Assisting with external facilitation of IDEAS Project (named *Into the Future* by the school), actively participating in a series of IDEAS related staff and IDEAS Management Team meetings: 1. facilitated the analysis of the Diagnostic Inventory data working with both the staff and the IDEAS Management Team; 2. assisted in facilitating the development of the school vision and (to a limited degree) the schoolwide pedagogy. While this period of involvement with Holy Cross pre-dated my formal data collection at the school – this was a key period in the *ideas* process and thus became a significant part of the data.
March 2000	First round of individual interviews with 10 teachers (including the principal). All the teachers continuing from 1999 agreed to participate, including one teacher who had played a significant role as a teacher representative in the IDEAS Management Team in 1999 before taking early retirement in December. The one new staff member did not volunteer to participate.
April – May 2000	Observation of three Thursday afternoon 'professional meetings' scheduled by teachers as part of their pedagogical plan.
June – July 2000	1. Participation in Parent Effectiveness Training (PET) with the staff on Thursday evenings, for 8 weeks. 2. Observation of the combined Staff and School Council Meeting held on a Saturday to discuss the Governance Plan, the Management Plan and the Teachers' Pedagogical Plan.
October – November 2000	1. Second round of individual interviews – all staff interviewed in March participated, excluding the teacher who had taken early retirement in December 1999. 2. Focus group meeting of teachers reflecting on what they had achieved in 2000 and their plan for 2001.

3.5.2 Willowbank State High School

At Willowbank, data were formally collected over a 12-month period from November 1999 to November 2000. This was preceded by two familiarisation visits to the school (accompanying the external facilitator) and observation of the feedback session following the first trial of the concepts and questions by IDEAS Group members. I had little personal contact with the school prior to the initial round of data collection.

Table 4: Data Collection at Willowbank State High School

Timings	Data Collection
March – April 1999	Accompanied the external facilitator to observe two of his meetings with the IDEAS Group (IDEAS Management Team) as they worked on developing the vision and began work on the schoolwide pedagogy.
June 1999	Observation of the IDEAS Team report back session. The day was spent sharing (with each other and the external facilitator) the results of their individual trials of the concepts and questions (schoolwide pedagogy).
November 1999	Document analysis - IDEAS Group meeting minutes and notes; artefacts (vision statement drafts, schoolwide pedagogy drafts).
December 1999	1. Individual interviews of the IDEAS Group (6). 2. Individual interviews with teachers identified by the IDEAS Group as wanting to be more closely involved with IDEAS work (those being mentored) (5). 3. Focus group meeting of the IDEAS Group, addressing issues emerging from the individual interviews. 4. Interview with the external facilitator. 5. (Additional (5) interviews carried out by Dorothy Andrews: (refer Appendix 13): four teachers identified by the IDEAS Group as being peripheral to the project, also the principal).
March 2000	Observation of presentation made by two members of the IDEAS Group to a new cohort of IDEAS facilitators in Brisbane, outlining what had been achieved at Willowbank SHS through their engagement with IDEAS.
April 2000 May, August and November 2000 November 2000	Observation of three mentoring sessions as individual members of the IDEAS Group worked with their 'mentees'. Extended meeting (IDEAS Group) State of the Project meeting. Observation of feedback sessions by mentees, in two successive trials, to the whole staff. Follow up interviews with two of the IDEAS Group. Observation of feedback to the whole staff following school-wide trial. Follow up individual interviews – 12 months on, the experiences of: 1. The IDEAS Core Group (4); 2. Teachers identified by the Core Group as being more closely involved with their IDEAS work (teachers involved in the mentoring process) (4); 3. Teachers identified by the IDEAS Group as sitting on the periphery, or having limited involvement (4); 4. (Additional 4 interviews carried out by Dorothy Andrews: two young teachers being mentored, the principal and the deputy principal with limited involvement in IDEAS).

At Willowbank, interviews were conducted with the members of the IDEAS Group and with representatives of groups of staff with different levels of involvement in the project. In addition to the interviews, the data consist of IDEAS Group discussions, the documentation prepared by the IDEAS Group as a record of their project, observation of staff meetings and reporting back activities. This is summarised in Table 4.

3.5.3 Rainbow Terrace State School

Prior to commencing this inquiry, I had visited Rainbow Terrace on an IDEAS related visit and met the facilitators at a training day. After several familiarisation

visits to the school, I was allocated time at a staff meeting to brief teachers about my research. More than half the teachers subsequently volunteered to participate.

Table 5: Data Collection at Rainbow Terrace State School

Timing	Data Collection Activities
March 2000	1. Initial contact with IDEAS facilitators at a facilitator training day for the Education District cohort. 2. IDEAS visit to school with IDEAS (university) team members – for discussions with principal and facilitators.
April/May 2000	Research familiarisation visits (total of three days). Spent time helping out and observing in classrooms and in informal conversations with teachers.
May 2000	Attended a staff meeting and briefed teachers about my research, requesting their participation. Fourteen (out of 23) teachers subsequently volunteered to participate in individual interviews.
June 2000	1. IDEAS (university) Team Members visit. Meeting with the IDEAS School Management Team – workshop on analysing the Diagnostic Inventory Data. 2. Interviewed Deputy Principal/Facilitator before her departure on leave. 3. Informal group interview with the IDEAS facilitators at a District Facilitator Training Day. (There was a third facilitator for a brief period).
July 2000	1. Participant observation in the pupil free day where the whole staff analysed and worked with the Diagnostic Inventory data. 2. Spent three days in the school conducting the first round of interviews. Twelve teachers and the principal interviewed individually. 3. Informal conversations with teachers and with the principal.
August 2000	1. Participant observation of an IDEAS School Management Team meeting where pupil free day is being planned. 2. Follow up individual interviews with the principal and with the deputy principal/facilitator and the teacher who had been the third facilitator. 3. Participant observer in IDEAS professional development sessions. Half of the staff in morning group, the other half in the afternoon group. 4. Informal group discussion with principal and facilitators at the end of the day.
October 2000	1. Participant observer in IDEAS professional development session. 2. Follow up interview with the teacher /facilitator.
November 2000	1.Extended focus group discussion with the IDEAS School Management Team. 2. Follow up interview with the principal and with the deputy principal/facilitator.
2001	Continued follow up through the facilitators and the principal. Period of formal data collection over but contact with the school maintained and copies of relevant documents were forwarded to me.

The timing of Rainbow Terrace's participation in the *ideas* process precluded a second round of interviews with all participants. Instead, emphasis was placed on observation of IDEAS professional development activities, iterative interviews were held with key participants to track progress, and an extended focus group

discussion with the IDEAS School Management Team at the end of the year proved valuable. This is summarised in Table 5.

3.6 Working With the Data

3.6.1 Transcription

All the interviews and the IDEAS related professional development activities were audio-taped and transcribed. Before moving on to the analysis of this very large amount of data, it is important to acknowledge that transcribing is itself an interpretive process (Kvale, 1996; Powney & Watts, 1987). While an interview may be captured on audio-tape, many aspects of the context are immediately lost. Facial expressions, gestures and other visual clues to meaning are not recorded (Powney & Watts, 1987), and, inevitably, occasional words on the tape are difficult to decipher. For this inquiry, the reliability of the transcriptions was assisted by the use of a good quality field recorder and a specialist transcribing machine.

Another potential problem is the loss of meaning that may occur when an interview conversation is transcribed into written form, as these are two very different forms of discourse. Kvale (1996) points out that by fixing a living, ongoing conversation into static written words, the transcript takes on a solidarity out of keeping with the conversational context and may come to be regarded as solid empirical data. This was an important point to keep in mind during the data analysis when the interviews were coded and 'categories' extracted. As the researcher and interpreter of the data, I had to be careful to maintain the link between the increasingly decontextualised categories and the original interview conversations.

Transcription involves the researcher in interpreting what is being said and in making decisions about whether to include the pauses, the repetitions and the comments that have nothing to do with the topic. According to Rubin and Rubin (1995), researchers differ in their willingness to modify a quotation, though it is common practice to edit out repetitions and comments irrelevant to the topic. Recognising the importance of presenting the stories in this study in a

comprehensible and accessible way (Kvale, 1996), I have (where indicated) omitted repetitions and incidental comment where these do not affect meaning.

3.6.2 Analysis of the Data

As indicated by Powney and Watts (1987), making sense of all the data collected at interviews is a most daunting task. Working with the enormous amount of text generated was a considerable challenge. It was important to be open to the data to see what emerged of interest and importance – to do it justice while beginning to make meaning of it (Seidman, 1991). This required carefully working through each of the transcripts and checking across transcripts to facilitate the construction of a broader picture still grounded in the data. My task was to work with the material representing it as faithfully as possible, while actively interpreting what it might mean (Powney & Watts, 1987). To achieve this required imposing some structure on the data (Wolcott, 1994), maintaining its accessibility while working with manageable parts so that judgements could be made about what was relevant to the inquiry. The solution I found was QSR NVivo (Version 1.2.142) which allowed me to ascribe categories, to code and retrieve the data with the flexibility required to meet my purposes.

My initial purpose was to tell the complex and dynamic story of each school, looking at the cases individually and giving the uniqueness of each due consideration. The second stage of analysis focused more specifically on the generation of professional knowledge in each school before drawing the three cases together to learn from their collective experiences. This presented the coding challenge of how to capture the great complexity of each setting (coding up from the specific case) while making sure that the categories would ultimately allow cross-case comparisons to be made (coding down from knowledge creation and associated concepts). I overcame this potential tension by developing a coding system which was sufficiently flexible to allow both the rich description of individual schools and generalisability between settings. Each case was coded as a separate project (textbase) but using a common coding system with five broad coding categories: school context, leadership, relationships, learning and knowledge, and school culture (see Table 6). This broad framework for analysis was further divided into sub-categories intended to allow the subtleties of each

case to emerge from the data and differences to be tracked in each school's experience with knowledge creation.

While the coding allowed different patterns to emerge though a rapid form of electronic cutting and pasting, it increased the danger of decontextualising and abstracting the interview conversations (Kvale, 1996). I countered this by returning to the original transcripts of the interviews – which although now transcribed in written form, were coherent individual narratives (Wolcott, 1994). Without the categories (or some other construct) to break up the data into manageable parts, it would have been impossible to make sense of so much material in any systematic way. It was important, however, for me to remember that the categories were something I had constructed.

Table 6: NVivo Coding Categories Devised for Data Analysis

NVivo Coding Categories	
Major categories	**Sub-categories**
1. School Context	History and ethos; Distinctiveness; Advice to new teachers; Guiding theory; Particular challenges; Teacher background; Ideal teacher; IDEAS data and teacher response.
2. Relationships	Administration and teachers; Between teachers; Teachers and students; With parent community.
3. Leadership	Admin leadership; Teacher leadership; Shared and supportive leadership.
4. Learning and Knowledge	Individual learning; Group learning; Schoolwide learning; New knowledge from outside the school; Professional development; Learning through dialogue; Knowledge sharing; Collective creativity; Structural support for learning; Practical knowledge; Changing practice; Learning through engagement in IDEAS.
5. School Culture	Trust and support; unity of purpose, Shared values/ beliefs/ norms; Changing image of teacher professionalism; Scope for individuality; Working collaboratively; Deprivatisation of practice; Change processes; Focus on student learning; Joint responsibility for students; Decision making.

Transcripts of each interview, of meetings and of IDEAS professional development sessions were coded individually. Sections of the transcripts were frequently coded in more than one category to avoid oversimplification of complex events. Transcripts were dated so that change over time within a category could also be identified. My use of NVivo provided a way of responding to the challenge of how it is possible to analyse the data in a way which enriches

and deepens the meaning of what the participants have said and then go on to reconstruct that into an account to be conveyed to others (Kvale, 1996).

3.7 Generalisation

A feature of the study is its recognition of multiple voice and multiple perspective. To maintain its integrity, the methodology has to respect this multiplicity and take care not to abstract the data to a degree where they are "torn out of their…narrative context" and stripped of:

> … (the) meaning that situates the knowledge claims in the conditions and context of the inquiry *and* of the subjectivity associated with human presence in the inquiry (Connelly & Clandinin, 1995b, p.11).

The decision to study three cases was deliberate, to allow each case to be studied in sufficient depth while keeping open the possibility of being able to meaningfully draw out some generalisation from the data. However, mindful of not losing sight of the unique value of each case, it was important to give careful consideration to the timing and purpose of any generalisations made. Stake (1998) asserts that a case study can be seen as a small step towards grand generalisation, but cautions that although the case study *may* be used for theory building, this is not necessarily the best use (2000). He notes:

> …(that) damage occurs when the commitment to generalise or create theory runs so strong that the researchers attention is drawn away from features important for understanding the case itself (Stake, 1998, p.89).

This inquiry seeks to generalise without decontextualising and depersonalising. This may be possible through naturalistic generalisation (Stake, 1998). By being strong on reality and presented in a way that is easily understood, case studies may provide insight into other similar situations, helping the interpretation of other similar cases (Cohen, Manion & Morrison, 2000; Nisbet & Watt, 1984). Provided the salient features of the case are documented, a new situation can be illuminated by a clear understanding of a known case (Sturman, 1994). Lincoln and Guba (2000) draw on Stake (2000) to explore the middle ground between nomic generalisation and unique particularised knowledge. They recognise the value of generalisations that resonate with the readers experience, noting, "if you

want people to understand better than they otherwise might, provide them with information in the form they usually experience it" (Lincoln & Guba, 2000, p.36).

My choice was to begin to conceptualise the processes at work in a more general sense in the final stage of the analysis – generating what Stake (1995) describes as 'petite generalisations'. Such tentativeness allows generalisations to be made while retaining an element of uncertainty appropriate in a study which emphasises the importance of contextualisation. This is the kind of generalisation that logically grows out of this study, the kind that may usefully extend the understanding of practitioners, providing insights into experience and perhaps assisting change. It is worth noting that case studies can offer useful vicarious experiences in several ways (Schofield, 2000, pp.61-765):

- by expanding the available range of interpretations by taking the reader into new (though in some ways familiar) territory;
- by seeing things that may otherwise have been missed, as a result of seeing the world through the researcher's eyes;
- by decreasing defensiveness and resistance to learning. Insights and understandings may be gained without the threat that might be experienced in real life.

Adelman, Jenkins and Kemmis (1984) assert that understandings generated by single case studies are significant in their own right, and that it is legitimate to generalise from the particular instance. Others, (e.g. Thomas, 1998; Sturman, 1994) note that generalisations may be made with greater confidence and less criticism when several cases are studied. While expressing concern that comparison between cases can obscure knowledge about the case, Stake acknowledges that it is certainly useful to compare multiple cases of intrinsic interest (Stake, 1998). This is the course that has been followed. In the final chapter, some generalisations are offered that are drawn from the three cases.

3.8 The Researcher in the Text

Earlier, I alluded to the impact of a researcher's view of the world on the nature and shape of an inquiry. My beliefs about the nature of reality and of knowledge have played a significant role in shaping this study. It reflects my view of the school as a contextualised place with a unique life world inhabited by individuals who, within the broad scripts of place, profession and school structure construct their own reality. My view of the world of research holds that much meaning is lost through abstraction and decontextualisation, and through the reduction of rich diversity to the quantifiable. That is not to say there is no place for quantitative research in education – undeniably much can be learned from broad-based findings. The intention here, however, is to explore what understandings of knowledge creation emerge from specific school contexts.

According to Cohen, Manion and Morrison (2000), one of the hallmarks of a case study is that the researcher is integrally involved in the case. The stories of the schools told in Chapter 4 are firmly grounded in the data. Each story was grounded in the accounts of the individual participants and in observation of professional development activities – all taped, transcribed and carefully coded. Still, the stories are not neutral and objective. They have been constructed. As the researcher I have decided what constituted each school's own story.

> This is not to dismiss the aim of finding a story that best represents the case, but to remind that the criteria for representation ultimately are decided by the researcher (Stake, 1998, p.93).

My own story too is intermingled with the stories of the school because my own history and experiences have influenced the way that I interpreted what I was told and observed. As Thomas cautions:

> I doubt that anyone can ever validly claim to enter any setting, no matter how familiar or exotic, without bringing along expectations about what to look for and how to interpret what is seen and heard (1998, p.137).

My ongoing involvement with the broader IDEAS Project was a significant influence, as was my own classroom, school and system experience. I had never worked in the Queensland State school system - making my entry into schools both less informed and less encumbered with the minutiae of system operation. As a 'student' and 'researcher' originating outside the system, I was not

positioned as 'expert' or as having positional power. This, I believe, facilitated communication and provided a basis for the development of trust.

Entering the research settings, I sought to be open-minded and non-judgemental. It was important, however, to recognise that my subjectivity was a factor influencing the study. Stake raises the issue of the unique relationship of the researcher to the case study (1995) and talks of the researcher's major conceptual responsibilities (1998). These include the selection of the cases and the themes to be studied, selecting patterns of data to develop the issues, and selecting alternative interpretations to pursue, prior to developing generalisations about the case. These are certainly significant responsibilities as the story 'told' in each case study is one of many possible stories. I am also aware that the act of carrying out the research is likely to have had an impact on the situation being studied and that, inevitably, my story will be interwoven with the stories being told. It is for this reason that I have chosen to acknowledge my presence in the text and my personal perspectives in the interpretation. Recognising my own location in these school communities, and that I am constrained by my view of the world, I have avoided the use of academic text:

> …which construct a god-like, all-seeing, all knowing, all-comprehending stance, which is at the same time disinterested and fair (Potter, 1996, p.10).

Sturman (1994) suggests that personal judgement forms part of all science and is neither objective nor subjective. I have used my personal judgment in making assertions about understandings of knowledge creation - assertions that I believe to be true and fully supported by the data. Therein lies a degree of objectivity.

Before outlining the criteria establishing the credibility and trustworthiness of this research, it is again appropriate to note the complicated research environment for this study. The reasons for this have been outlined in Chapter 1. While my involvement with the IDEAS Project facilitated my doctoral research in schools, it also situated me in a broader research context with the potential to compromise this inquiry. This possibility has been averted by the sensitive approach taken by my supervisors, the distance I have maintained from other research activity, and my careful attention to the criteria for adequacy described below.

3.9 Criteria for Judging Adequacy

Within conventional positivist social science, the criteria of internal validity, external validity, reliability and objectivity have been used to judge the quality of disciplined inquiry (Denzin & Lincoln, 1998b). Internal validity is the degree to which the findings correctly map the phenomenon in question while external validity relates to the generalisability of the findings to other similar settings. Reliability concerns the replicability of the study and objectivity is the extent to which the findings are free from bias (Denzin & Lincoln, 1998b, p.186). While some researchers may argue that these criteria should be applied to both quantitative and qualitative inquiry, others (e.g. Bassey, 1999; Denzin & Lincoln, 1998b; Rubin & Rubin, 1995; Garman, 1994; Eisner, 1991; Lincoln & Guba, 1985) argue that the criteria should be different.

According to Lincoln and Guba:

> Different paradigms make different knowledge claims, with the result that the criteria for what counts as significant knowledge vary from paradigm to paradigm (1985, p.301).

Arguing that the conventional criteria are inappropriate when applied to naturalistic inquiry, Lincoln and Guba suggest the "counterpart criteria" of credibility in place of internal validity; transferability in place of external validity; dependability in place of reliability and confirmability in place of objectivity (1985).

Others have added weight to this argument. Eisner (1991) argues that coherence, consensus and instrumental utility are the key features in the believability of a text. To be coherent, the inquiry needs to make sense and to ring true. The conclusions need to be supported in the text and multiple data sources used to give credence to the interpretation that has been made. Eisner (1991) further suggests that consensus is achieved when those reading the research agree that the findings and/or interpretations reported are consistent with their own experience or with the evidence presented. Instrumental validity relates to the potential professional usefulness of the study. Taking a somewhat similar approach, Garman (1994) lists verite, integrity, vitality, rigour and utility suggesting that a qualitative inquiry is to be judged by factors such as its intellectual honesty and

authenticity; its internal cohesion; its meaningful and use of proper voices, its sufficient detail and professional relevance.

Agreeing that most of the conventional indicators of validity and reliability do not fit qualitative research, Rubin & Rubin (1995) suggest that the credibility of such research should be judged by its transparency, consistency-coherence, and communicability. This is echoed by Sturman (1999) who asserts that case study methodology can achieve its own form of precision if reported in a way that conveys credibility. Denzin and Lincoln (1998a) suggest that the trustworthiness of an inquiry may be judged by its credibility, transferability, confirmability and verisimilitude. Given the methodology employed, it is appropriate that the adequacy of this study should be judged by such criteria.

This inquiry does not seek to achieve validity through its generalisability – beyond what Stake (1998) describes as naturalistic generalisations which may be transferable to other similar settings. The possibility of transferability is determined by those seeking to apply the findings to other contexts (Trochim, 2002; Hoeplf, 1997; Lincoln & Guba, 1985). Transferability is a process performed by the readers of research who compare the specifics of the research with a familiar environment or situation (Palmquist, (Ed.) n.d.). I have enhanced the possibility of transferability by giving detailed descriptions of the research contexts and making the assumptions underpinning the research explicit.

Similarly, the criterion of dependability is more appropriately applied to this study than its more conventional counterpart, the criterion of reliability. As this study inquires into the construction of professional knowledge in context, its very nature mitigates against the assumption that it may be replicated. Naturalistic generalisations may be made and the findings transferred but not replicated by others.

The objectivity of this inquiry may be judged in relation to "the quality of the testimony" (Scriven 1971 cited in Lincoln & Guba, 1985, p.300).

> Here 'subjective' means unreliable, biased or probably biased, a matter of opinion, and 'objective' means reliable, factual, confirmable and confirmed, and so forth This definition moves the emphasis from…the

> characteristics of the investigator to the characteristics of the data – are they or are they not *confirmable?* (Lincoln & Guba, 1985)

The data in this inquiry are credible because of prolonged engagement, persistent observation, and triangulation (Lincoln & Guba, 1985). I have carried out the inquiry in such a way as to enhance the probability of the findings being found credible – constructing the narrative from multiple perspectives (Lincoln & Guba, 1985) and, as Lincoln and Guba (1985) point out, the demonstration of credibility is sufficient to establish dependability.

I have tried to address the issue of transparency by providing a detailed account of the research process. Information has been provided on the way the cases were selected, the data gathering process, and the method of analysis. Consistency and coherence have also been addressed. In this inquiry, multiple perspectives have been used to clarify meaning and reduce the likelihood of misinterpretation (Stake, 1998). Differing perceptions expressed in interviews and documentation have been included, along with those formed as a result of participant observation. At the same time, it is acknowledged that different perceptions of an event or phenomenon exist within each setting. As Rubin and Rubin point out:

> If an interviewer discovers four different versions of the same event… they may all be right, reflecting different perspectives on what happened or observations of different parts of an event. People looking at the same event may understand them differently (1995, p.10).

Apparent inconsistencies between accounts were followed up and the reasons for the variations checked (Rubin & Rubin, 1995). Where contradictions have remained, explanations have been offered to help maintain coherence. Issues of reliability during interviewing, transcribing and analysing have already been addressed.

The truth claims of this inquiry may perhaps be viewed from a postmodern standpoint – if the stories constructed and the accounts given in the study reflect the truth as experienced by the participants, and have a broader credibility through their resonance with the experiences of others in similar settings. This is in line what Kvale describes as, "specific local, personal, and community forms of truth, with a focus on daily life and local narrative" (1996, p.231).

Drawing on Bassey (1999, pp.75-76), the trustworthiness of this inquiry is also evidenced by:

- my prolonged engagement with each of the settings. This involved repeated visits and ongoing interaction with the participating teachers in interviews, in their professional activities, and in both formal and informal discussions;
- my persistent observation of (and inquiry into) emerging issues;
- the triangulation of data – checking different sources against each other, seeking clarification where meaning was contested or unclear;
- offering accounts that are sufficiently detailed to give the readers confidence in the findings; and
- the maintenance of a comprehensive record of each case studied (with interview tapes, transcripts, field notes, coded data reports, and school documentation).

Ethical Considerations

Ethical clearance was gained from the University of Southern Queensland and permission was received from the appropriate authorities to carry out research in the schools. In each of the schools the staff were briefed on the nature of the research and what it entailed. Their permission was sought and those who volunteered received the information in writing so their written consent was informed. The names of the schools and the individual participants have been changed to ensure anonymity.

3.10 Conclusion

The methodology for this study is logically consistent with the inquiry, in that it views both knowledge and reality as social constructions. The methodology is designed to foreground the importance of context and of difference between schools. It is designed to recognise the legitimacy of a range of perspectives within the same setting and to allow me, as researcher, to remain visible and to participate. I have taken considerable care to remain true to the data in the construction of the stories of the schools which follow. The teachers' voices can clearly be heard both in initial stories of each school's engagement with a school

renewal process and in the more focused exploration of knowledge creation in each context - in Chapter 4 and 5 respectively. I have also taken responsibility for developing my own understandings, based on my interpretations of the dynamics, implications and effects of knowledge creation in each setting.

Chapter 4: The Stories of the Schools

4.1 Overview

In this chapter the story of each of the three schools is told in relation to their experiences with IDEAS. The stories are firmly grounded in the interview data, supplemented by my own observations and experiences as a participant observer. While these accounts represent only part of the multi-layered narrative of the school, they seek to provide some understanding of the context of each, against the background of engagement in a process of whole-school renewal. The stories are told to provide a basis for understanding the processes of knowledge creation in each context. Care is taken to consider each school individually so that the contexts are clearly delineated and differentiated. While emphasis is placed on the voices of the teachers, all names have been changed for the sake of anonymity.

4.2 Holy Cross Primary School

4.2.1 Background: Setting the Scene

Holy Cross Primary School was opened twenty years ago to serve the Lutheran community of a Southern Queensland city. Places were in great demand in the early years – with seven completely full classes and the waiting list 'a mile long' (Elsie). There was such a demand that non-Lutheran children rarely got a place (Alison). It was 'a tremendous place' (Moira), 'a wonderful little school' (Elsie). The staff were Lutheran – many with "strong beliefs, faith and commitment and for some… being Lutheran was possibly more important than being a teacher" (Alison).

After three or four years, the founding principal left and was replaced by:

> …an absolute dynamo who everyone loved and who did crazy things like dressing up as the Phantom…he had a brilliant sense of comedy, a fantastic warmth and relationship with people… the school hummed along just beautifully – even though some of the staff weren't brilliant teachers at all (Lindy).

When the second principal left in the early 1990s, he was replaced by George Stolz who was to remain in the school for ten years. George is a stoic and

dedicated man with a strong Christian commitment who, "…as the principal very clearly lives his Christian beliefs on a daily basis and models his Christianity for others" (Alison). Thus, the change in principal was accompanied by a change in the way that leadership was enacted at Holy Cross. George's perception of his role as principal combined with his management style had a significant impact on the school.

4.2.2 *Into the Future*

In 1999, the School Council at Holy Cross decided to embark on IDEAS - renamed *Into the Future* - as a school renewal project to be facilitated by external (university based) consultants. By then, the school was presenting a somewhat different picture. The waiting lists had disappeared, many of the pupils were non-Lutheran, and classes had shrunk. For George, the reasons for this decline had never been properly identified, though he could discern:

> …some negatives which seemed to be with the school for a good while…staffing issues, staff performance, discipline and inconsistencies in how staff operated (George).

The teachers shared these concerns and agreed that something had to be done about the falling student numbers. *Into the Future* was seen as a way of finding out what was wrong and turning the school around.

While some loss of enrolment could possibly be attributed to new schools opening in the area, most people saw the problems as originating within the school. The *Into the Future* diagnostic inventory data[3] throw some light on this, indicating that teachers generally felt successful in their teaching, particularly in literacy and numeracy. They were confident in the school's Christian identity, the Christian values promoted and the schools relationship with the Christian community. Teachers were positive about their high expectations of students and their responsiveness to parents' wishes. These perceived strengths are consistent with the official story of the school – that is, a Lutheran School with high expectations of its students, guided by Christian values, and meeting the needs of its parent community.

[3] Refer to Appendix 1 for a sample of the Diagnostic Inventory for Teachers. The statements in this survey stem directly from the various components of the IDEAS Research-based Framework

A look at the concerns expressed by teachers, however, suggests a very different story, reflected in their greatest concern – low morale. The unofficial story of the teachers is about a staff that find it difficult to manage change and address complex issues. They worry about the school's image in the community, particularly in relation to the student discipline and the school's apparent inability to manage student behaviour. The professional focus is on the teacher in the classroom, working with their designated students. There is little emphasis on teachers working with each other – little priority or time for reflecting on teaching and learning or sharing successful practices. There is no agreement on what it means to be a good teacher in the school, no identification and celebration of teaching excellence. Against a backdrop of declining enrolments, the scan data show a divided staff, operating in an atmosphere of mistrust and blame. It tells a story of isolation and uncertainty.

The suggestion in the data of two realities – the official story of the school and the lived reality - running side by side, is clearly substantiated by the teachers' own accounts of their experiences. The situation is further complicated by the interplay of the two stories - seen particularly in the co-existence of Christian values, blame and mistrust. While conflict arising from these two competing stories is not publicly discussed, in the privacy of individual interviews, some teachers acknowledged the tension they felt. There is confusion arising from the presence of ill feeling in a Christian school (Edna) and frustration arising from the gulf between talk of God's love and forgiveness and contrary actions (Moira). This inconsistency between espoused vales and action was identified by another teacher concerned that, "…on the one hand we are a Christian School and uphold Christian values – but the way we deal with people isn't really all that Christian" (Alison).

The teachers welcomed the data as valuable and eye-opening (Annie). It was an opportunity to express a view (Julia) and bring a whole range of issues out into the open (Karen). At least in the short term, *Into the Future* provided a forum for discussion.

> I think everyone was a bit scared about the results of the survey – but the 'no blame' approach was good because we had all got to the end of our tether. There was really a cloud over the whole school. It was such a

> difficult time…we were all working and really pushing water uphill (Lindy).

The diagnostic scans were carried out in mid-1999 and for the rest of the year the school was involved in creating a new vision and identifying its underpinning values. The School Council had instigated *Into the Future*, and the group that met regularly to manage this work consisted of the Principal, members of the School Council and three teachers chosen by the staff. This was a significant move in itself as, until then, teachers had little contact with School Council members and no voice in decision-making at that level. Teacher representation on the Council was provided by an elected member who also happened to be a teacher, at a different school. Thus, teachers were represented generically, if not specifically – a situation which no-one teaching in the school appeared to question.

The three teachers in the *Into the Future* Management Group attended each meeting and consulted extensively with the other teachers between meetings. Additional staff meetings were devoted to making meaning of the data, identifying successful practice and discussing the way forward. By the end of the year, the school had developed a statement consisting of a mission, a vision, a list of underpinning values, and three pedagogical principles (Exhibit 1).

Exhibit 1: Holy Cross Primary School – Vision Statement (November 1999)

Holy Cross Primary School: Mission, Vision and Values

The School's Mission: Our Purpose
The Holy Cross Primary School is a cohesive community which develops the whole person through the promotion of Christian values and quality educational opportunities

The School's Vision: Our Direction
The vision of the school is to create a unique learning environment for our students that gives the school a distinctive character of freedom, order, and community.

The Values:
The following values shape our freedom, order and community, and guide our practice:

- the Christian values of forgiveness, renewal, and service to God and others;
- the human values of earned respect, caring for others and intrinsic sense of responsibility;
- the educational opportunities of learning the basics, higher order thinking, enrichment and extension.

The Principles:
From our purpose, direction and values flow these principles of teaching, learning and assessment at Holy Cross Primary School:

- every child is a special person;
- high and appropriate expectations in the basics, thinking and treating each other;
- reasonable freedom, order and community.

An additional statement, 'Excellence in Teaching and Learning' (Exhibit 2) was developed by the teachers to elaborate on the three principles, indicating how they were to be interpreted and implemented by teachers, and the expected outcomes for students.

Exhibit 2: Holy Cross Primary School - Schoolwide Pedagogy (November 1999)

(abbreviated – see Appendix 7 for the complete version)

Holy Cross Primary School: Statement of Excellence in Teaching and Learning

Beliefs about teaching and learning, developed in response to School's Vision.

The Principle that Every Child is a Special Person: In detail

- The recognition, respect and encouragement of every child as a special person with individual abilities, strengths and talents.
- The acknowledgement of individual rates of learning, with every child being given the opportunity to participate, learn at their own level, have their say and be noticed.

Means that staff will: Consider each student as a child of God; Listen to students; Provide rich and varied opportunities; Give respect and empathy; Accept and love the students; Accept the student's best contribution with encouragement and support; Know and understand students, their strengths and weaknesses; Consider that students can be responsive, flexible and adaptive.

The Principle of High and Appropriate Expectations in the Basics: In detail

- The provision of many opportunities for success across a wide range of areas, enriching learning through choice and diversity of activities
- Shared high expectations for each student's mastery of the basics

This means that in my teaching students will

- Learn the essential generic skills for effective learning. These are: collecting, selecting, analysing and organising; communicating ideas and information; planning and organising; working with others; solving problems
- Learn outcomes, structured and sequenced in whole-school programs for each of the nine Key Learning Areas

The Principle of High and Appropriate Expectations in Thinking: Means that Staff will

Know each student, their talents, abilities, needs, aspirations and interests; Know how to challenge, empower and encourage; Know how to set goals and expectations and what goals and expectations to set; Know, understand and use thinking processes, enrichment and extension; Give opportunities by organising time, giving students 'space' and structures (eg. stioning) to develop thinking, creativity and problem solving

Means that teaching and learning will include

Thinking processes, strategies and structures associated with multi-intelligences (Gardner), taxonomies of thinking (Bloom) and developing thinking (de Bono). Planned extension and enrichment, thinking skill development and opportunities for creativity and expression

The Principle of High and Appropriate Expectations in Treating Each Other: In detail

- Relationships are characterised by caring and concern for the welfare of others, along with respect, courtesy and responsibility which grows out of a mature problem solving and self-control.
- The creation of a positive, supportive and affirming classroom and school environment based of forgiveness and renewal, where learning reinforces responsible behaviour and each day represents the opportunity to start anew.

The process of formulating the vision statement had been a new experience for most teachers. So little time had previously been spent in talking about teaching and learning that it came as a surprise to some to hear what other teachers had to say. For one teacher it was an interesting time because:

> …a lot of people's opinions did come out and you realise how different everybody can be. You see the motivation behind people's actions once you know some of their values and beliefs (Karen).

Another teacher was left feeling like a square peg in a round hole as she became aware of how even her basic assumptions like "every child is an individual" were not necessarily shared by others. This was a real eye-opener (Alison). Others appreciated the opportunity to bring what people were thinking out into the open and be able to focus on some common goals (Annie). There was agreement that the statement was good and suited the school (Julia, Alison, Elsie, Karen) and that it was actually "pretty impressive" (Annie).

At the end of 1999, the teachers met and drew up a list of priorities which included developing whole-school curriculum programs, behaviour management, meeting and planning together, professional development and networking. These priorities formed the basis of the Teachers' Pedagogical Plan developed early the following year (Exhibit 3). This was the teachers' own working document, drawn up in an attempt to address their major concerns. It helped them begin the year with a feeling of purpose and a sense of what they wished to achieve in 2000 (Alison). It also represented an area of common ground where agreement had been found (Karen).

The influence of the vision statement on some teachers, however, was short-lived. By halfway through Term 1 in 2000, Moira had put hers on the shelf and didn't refer to it again. Tom was so disenchanted at being forced to move to a different grade level that he (figuratively) "threw *Into the Future* out of the window". Others saw value in the statement and believed it should be a working document but admitted that it was not referred to as often as it should be. There was some concern that an idealised view was being confused with current reality (Alison, Edna).

Exhibit 3: Holy Cross Primary School – Teachers' Pedagogical Plan (Feb. 2000)

Issue	Action
1. PET	All teaching staff to attend Pastor Leberman's Parent Effectiveness Training Course (8 sessions 7.30 p.m. weekly)
2. Whole School Planning	English; Science; Christian Studies LIFE
3. Major Inservice Programs	*External Workshops: (attended by selected staff)* Early Literacy – AISQ 3 day Key Teacher Training – Lutheran Schools HPE and Science *School Based* Whole staff LIFE inservice Enrichment and Extension Workshop
4. Behaviour Management	Review and implement behaviour management policy
5. Planned Meeting Times	*Rostered meeting times:* • weekly staff meetings for administrative, organisational, routine matters • Bible study: alternate with staff meetings on Wednesday afternoons • curriculum/staff development meetings: Thursday afternoons. For curriculum planning, staff inservice activities, implementation of *Into the Future* initiatives *Meeting with the principal:* Approximately 2 hours per term to: • review planning and assessment • discuss curriculum needs and ideas • discuss students progress and concerns • discuss preferred development
6. Shared Planning and Learning	Workshops related to writing the whole school English program
7. Networking	Following networking opportunities should be taken up by staff as the opportunity arises: • Learning Support Teachers Network • Gifted and Talented Network and Association • THRASS Teachers Network • Lutheran Schools Department – group meetings • AISQ – Staff and Curriculum Meetings • University – maintain contact with *Into the Future* consultants
8. Empowering and Resourcing Teachers for Enrichment and Extension	*Inservicing*: • attend local/district/state conferences on E&E and G&T • school initiates a day inservice with a major presenter • staff look through school resources on E&E and G&T • highlight extension provisions in current curriculum documents • write E&E into planning *Purchasing and Sharing Resources*

While a range of documentation had been produced, by March 2000, the Pedagogical Plan was the focus of teacher attention. Most people were still mindful of the vision and referred to it on occasions. The expanded *Excellence in Teaching and Learning* statement, however, appears to have fallen from view, once aspects of it had been picked up in the Pedagogical Plan.

4.2.3 Themes from Teachers' Stories

Before continuing the account of *Into the Future*, it is appropriate to pause and further explore the stories told by the teachers during the first round of individual interviews, in March 2000. In these interviews, teachers reflected on their daily lives at Holy Cross, and on experiences there, over time. It is beyond the scope of this account to explore the perspectives of all ten teachers in detail, but it is possible to identify themes which emerged and then to consider these in relation to the school renewal process which officially continued throughout 2000.

Staff Cohesion

A clearly identifiable theme relates to the lack of cohesion in the school. While some collaboration was occurring at a micro-level - between adjacent rooms or as a result of job sharing - generally, teachers did not know what was happening in other classrooms and they did not talk about what they were doing. This was partly the result of lack of allocated time (Elsie) and partly a result of the social conditions in the school. Concerns were raised about staff criticising each other's opinions (Alison), either directly or behind their backs (Edna, Lindy). Keeping quiet was a self-preservation strategy (Moira).

While the gossip and mistrust were clearly influencing teacher interaction – the situation was actually more complex. Prior to an opening up of discussion through *Into the Future,* a particular pattern of staff interaction had endured (Julia). The group dynamics had revolved around 'dominant personalities' who always had a lot to say (Lindy) and 'less dominant' teachers reluctant to risk expressing an opinion unless they had sounded out other people's opinions in advance (Karen). Tom perceived himself as "leading a solitary existence…sitting on the fringes and watching", not wanting to dissent or ask about things he didn't understand because the way he expressed himself "caused tensions and discomfort…(and) was confused with attack". Other teachers also felt threatened – concerned that if they spoke up and asked questions, they might expose their own professional ignorance. These teachers "…were always on the defensive, always trying to protect their little world in their classroom…fearful of being seen to be inept or inadequate" (Alison). One such teacher could understand why teachers just wanted to go their own way, "…it was this thing inside yourself, low self-esteem.

And nobody is going to know that I'm not coping if I put on a brave front" (Moira). George Stolz was at least partially aware of this problem, and of the inability of some teachers to change their way of working:

> There are still one or two teachers on staff who have difficulty with what we talk about. They aren't sure of their own position and own self-esteem - how they see themselves as teachers and how they operate (George).

In this climate of mistrust and uncertainty, talking about successful classroom practice was not necessarily encouraged and could be seen as engaging in a power struggle, with the "see what my class has done" teacher trying to gain ascendancy over the other teachers (Moira). Expressing views and talking about innovative approaches was fine – but too much of it caused the other teachers to turn off (Lindy). There was a certain defensiveness whereby some of the longer serving teachers were inclined to view suggestions for change as criticism of what had been done in the past (Alison).

Shame and Blame

If the lack of cohesion and climate of uncertainty are held up against a background of declining enrolments, the existence of shame and blame is unsurprising. One teacher poignantly expressed the former in the comment:

> At the end of each year, I would lose about 6 children out of the class and that really got to me after a while because I thought, why? What am I doing wrong? I have really worked my heart out. It was a cloud handing over us that really affected everything. There was a lot of negative feeling around (Lindy).

Other teachers echoed these feelings of guilt, expressing how awkward and awful they felt when children left their classes (Julia, Karen, Moira).

Blame was also apparent with "a lot of people…blaming others for the declining numbers" (Alison). One teacher was prepared to be particularly forthright, saying that, "there are two people on staff that need to go" and that one teacher in particular was "dragging the school down" (Moira). Attitude problems were mentioned by a number of teachers – one suggesting, "every teacher is at fault" (Rita). Others spoke of the big burden the teachers shared (Lindy, Moira) as the

declining numbers reflected on the teachers and sharpened the focus on those whose teaching practice was perceived as poor (Alison, Lindy).

While declining student numbers clearly caused anxiety, few structures were in place to give teachers feedback on their performance. There was general agreement that it was hard to know whether you were doing a good job and teachers formed their own judgements based on relationships with students (Karen, Lindy), parental comment (Karen, Elsie), student comment (Julia), intuition (Moira), and standardised test results (Elsie). A performance appraisal was carried out every couple of years. This was based on a university document used to assess student teachers in their final year practicum.

> You can go through and talk to a teacher and say, here is how this item is described, are you really doing this or is this something you could be doing. It gives such a big bank of ideas as to what could be done or what needs to be done. Teachers need to assess themselves very accurately against that and they can be shown that they've got areas that perhaps need building up (George).

This provided a benchmark of sorts, but by its very nature did not recognise the increasing knowledge base and higher professional competency that may be expected of teachers as they develop professionally over time.

Leadership

In March 2000, George Stolz reflected on his leadership at Holy Cross. The main focus had been helping teachers to do their job and making sure they had the necessary resources. He acknowledged that if he had paid more attention to monitoring standards over the years, rather than to "fire fighting", there might now be more uniformity in performance across the school. Currently, he was, "grappling with the whole area of forward planning, promotion and selling the product" which would involve changes to his role, when he developed his Management Plan in the coming weeks. The problem was that he tended "to pick up practical bits and pieces" that distracted him from this focus and he had increased his teaching role. With a teaching commitment every day, it was hard to see how he could be out promoting the school.

The teachers expressed great respect for George's dedication and commitment to the school – but were concerned about his workload. Annie describes how he took

it upon himself "…to organise everything and worked himself to the bone to get everything in place". His unwillingness to delegate jobs to other people (Annie, Alison, Elsie) left him "running himself ragged…totally overworked" (Moira). He assumed that everything came from the top, that he had to be in charge of every little thing, and did not spread out the responsibility (Annie).

George's unwillingness to delegate left him exposed to criticism – that things were never carried through (Edna), that discipline problems were not properly dealt with and major issues were not addressed (Lindy). He acted as a "peace keeper and fire fighter" (Alison), sorting out problems as they erupted rather than addressing the underlying causes. Alison wanted him to state his expectations rather than try to keep everybody happy and Edna just wanted a strong leader who would bite the bullet and set a firm direction.

4.2.4 *Into the Future* Changes

Picking up the *Into the Future* strand of the story once more involves some backtracking to June 1999, when the project commenced. When interviewed in March 2000, the teachers told of their experiences in the school over time but, by then, the project had already begun to influence the situation they were describing.

The involvement of the three teachers in the Management Team had opened up some space for teacher leadership. This leadership role developed over the second half of 1999 as they took specific tasks or issues for discussion back to the staff between Management Group meetings. The structure of the project gave the teachers a specific role in the school renewal process, and particular responsibility for pedagogy. As Principal, George Stolz had had a different focus – and he was expected to take a step back and allow the teachers to get on with their tasks. While the three teachers did perhaps continue to look to George for guidance (Alison), they played a significant leadership role in the completion of the tasks they had been given.

This was picked up again early in 2000 in the Pedagogical Plan which allocated specific tasks to teachers, particularly in different curriculum areas. Teachers took on the responsibility of developing whole-school programs in English, Science

and Christian Life - a move which George noted with approval. Individual teachers were not given specific responsibility in all aspects of the Pedagogical Plan, however. It was unclear, for example, who was to initiate strategies to increase teacher collaboration or the sharing of successful practice. While there was scope for curriculum leadership, there was a reluctance to take the initiative in other areas. The external facilitation of *Into the Future* had provided an impetus and a structure for teacher leadership, but once that phase was completed the teachers reverted to their previous conditioning of expecting leadership from the top (Karen) – waiting for things that had been talked about to happen (Annie). There was still an ambivalence about teacher-initiated change, as "unless you have a deputy principal, people don't appreciate it if you assume that role and boss them around" (Lindy). While the space for teacher leadership may have increased in limited and clearly defined areas, there were still obstacles.

> There is a teachers' plan - but for whatever reason, staff are still looking to be lead by George – there are some staff who just don't feel they are capable or who like to be followers rather than leaders. Then there are others, like me, who would be quite happy to take on leading, but are fearful of how the staff would perceive that (Alison).

From the start of 2000, time was allocated for regular meetings – staff meeting for routine organisational matters on Wednesday afternoon, alternating with Bible study, and professional meetings on Thursday afternoon. At these meetings, the dynamics of staff interaction had improved and everyone was having more of a say (Lindy, Julia). Discussions about acceptable student behaviour had led to a more consistent implementation of the behaviour management policy (Karen). Through discussion of the English and Science programs, teachers were becoming more aware of what was happening in other classrooms (Annie). Within the parameters they had defined in their Pedagogical Plan, teachers felt that progress was now being made (Lindy) and that the project could be successfully carried forward (Annie, Julia). From George's perspective, the majority of the teachers were very happy about what they were doing – their plan was up and running. They were making more progress with their plan than he was with his.

In March, the teachers were optimistic about what they would be able to achieve over the course of the year. George and the School Council were in the process of formulating their respective plans and the project appeared to be moving forward.

In May, the school council, principal and teachers met one Saturday for a whole-school planning workshop. The three plans – governance, management and pedagogical – were to be discussed by the whole group and their alignment explored. The Governance Plan was discussed with general agreement on the three focus areas: the provision of resources to allow implementation of the vision, the promotion and marketing of the school, and ensuring effective management and business systems.

The Management Plan (see Exhibit 4 for an abbreviated version) was presented by the principal. This was a lengthy (eight page) document and in it George appeared to have taken on the responsibility for everything - redefining his role by increasing it. George had amplified his usual responsibilities by adding aspects which picked up all the concerns identified by *Into the Future*, and also the notion of marketing the school which was a major thrust of the School Council. Perhaps this plan, representing his view of the role of the principal, was also an indication of great stress on his part – certainly, the role was unachievable the way it was delineated. The Management Plan was discussed at length with both teachers and the School Council members expressing their concern about the contents. Nothing was resolved on the day although the discussion extended well into the time allocated for the Teachers Pedagogical Plan which, in the end, was simply tabled for information.

It is not possible to say how those discussions were continued after that day – or what other factors might have been in play, but towards the end of that term, the Principal announced his resignation, effective from the end of the year.

4.2.5 Moving Forward in Time

The *Into the Future* story continues from another perspective in time, as we move to Term 4 and teachers look back over the year in a second round of individual interviews.

Achievements

The teachers had some positive things to say about the general feeling in the school – with some improvement in morale (Alison), teachers being more

Exhibit 4: Holy Cross Primary School - Management Plan (abbreviated) (July 2000)

The **Role of the Principal** of Holy Cross Primary School is to provide the environment and resources that support ongoing improvement as the school puts into action its Vision, Values and Principles.

Goals	Plans, Programs Actions
1. To do all to the **Glory of God**	Devotions, LIFE policy, program and implementation
2. To create, deploy and communicate the agreed **vision and values.**	Annual vision, values, goals and priorities review; Create the ethos of the vision and the values in the school in all planning, relationships and reflecting; Market the vision through the performance of the school.
3. To provide a **planned and structured approach** to setting and achieving goals and objectives.	Compile policy statements in support of the vision and values: Governance Policy, Administration Policy, Pedagogic Policy Produce school plans on the basic of the vision and values: Governance Plan, Admin Plan, Pedagogic Plan Sub-plans/Operational plans to support broader plans.
4.To provide a **learning /teaching/ caring environment** to ensure **improved student learning** is always at the focus of decision making and management.	Policy and programs that support the vision and values and the agreed Excellence in Teaching and Learning Enrolment policy and practice, Behaviour Management and Discipline Policy and Practice, student welfare; extra- and co-curricula programs for students.
5. To provide the best and most appropriate **curriculum** for our students to learn and our teachers to teach.	Plans support the Vision and Values and Agreed Excellence in Teaching and Learning. KLA school wide plans; teacher year level and unit planning policies; school assessment program, school needs assessment and reporting policies; learning support program policies – IEPs, enrichment and extension and remedial
6. The **school staff** to live the vision and values and achieve the goals and objectives.	Authentic Pedagogy Excellence in Teaching and Learning – Agreed Statement Staff roles and responsibility statements – reviewed annually; staff performance and duty appraisal; staff development appraisal; staff development program; learning and professional community philosophy; working with and within the enterprise agreement and Board of Lutheran Studies policy
7. To educate, consult, include and support **parents and the community** in and about the life of the school and children's learning.	Parent consultation and information sharing; marketing the school to the community; enrolment procedures; school/ congregation/ community shared activities, P&F role and support
8. To **resource and finance** the programs, initiatives and promotions of the school.	Finance Committee role and responsibilities, financial plans, administration of annual budget; accounting and auditing procedures; school maintenance; resource and facility planing.
9. To derive **quality, improvement,** innovation and value-adding.	Measuring, assessing and collecting current data Matching current data to previous results and benchmarks; Responding to identified needs.

prepared to ask when they did not understand, and more willing to share with each other (Alison). George had not tried to be in total control of everything, and had delegated more, particularly in curriculum areas (Julia). There was a high level of consistency in behaviour management (George). The rules had been framed more clearly and teachers given more freedom to implement them (Julia).

The Thursday afternoon meetings had continued throughout the year, though with some interruption from all the other pressing things that came along (Karen, Julia, Lindy). Building on previous work and drawing on Lutheran School guidelines, a whole-school Christian Studies program had been put in place (Alison). There had been a lot of discussion about English, and a tentative start had been made on the draft of a whole-school Language program (Alison). Further work on this had delayed by interruptions to the Thursday meeting times (Lindy) and by the allocation of a literacy intervention grant to the school. Having money meant that resources could be bought and the program could flow from these resources (George). Science, too, was going ahead (Annie). Tom, the key teacher in Science, had been released to spend time working with a Lutheran school adviser and they had produced a plan for the staff (Tom). The work on these school-based programs was creating a greater sense of unity (Annie) and greater consistency across the school in these areas (Alison).

Teachers did feel some frustration at the rate of their progress, however. There was some speculation about whether it might have been better to concentrate on and finish one project (Annie). Goals had been clearly set out in the Teachers' Pedagogical Plan at the start of the year, but not enough attention had been paid to how these were to be achieved - to the steps along the way. This had meant that the time available had not always been used constructively (Karen). The lack of organisation had other implications:

> We seem to start something and never finish it. We have got about six things on the go and they are all half done (Lindy).

Throughout Term 2, for one evening a week, the teachers attended the Parent Effectiveness Training (PET) course run by Pastor Leberman[4]. This course was based on developing positive relationships through effective listening and problem solving strategies. George believed it would be a good common experience for teachers, one they could use in their classroom. Looking back in Term 4, teachers did not believe that the course had much impact. It may have had some impact in one or two classrooms (Annie) but had not influenced

[4] Parent Effectiveness Training (PET), rather than Teacher Effectiveness Training (TET), was offered because Pastor Leberman was an accredited PET facilitator.

relationships between teachers (Alison). George acknowledged that it was not referred to in the school and that no effort had been made to build on what had been covered in sessions.

In relation to the guiding documentation of *Into the Future*, the vision statement was referred to occasionally by the teachers at staff meetings (Alison, Lindy) and had been kept in mind when policies were written (Julia). A good deal of attention remained focused on the Pedagogical Plan, and by the end of the year, most goals had been at least partially addressed. Probably the most significant exceptions related to enrichment and extension and to teachers sharing their practice. The former was put on one side because there were already so many extra demands on classroom time that it was difficult to even cover the basics (Karen, Annie, Julia). The latter proved too costly and too difficult to organise (George).

One document that had resurfaced was the *Excellence in Teaching and Learning* statement. George was developing a self-appraisal checklist and response sheet for teachers, based on the principles elucidated in the statement, so the contents of this document were again under discussion. Teachers were to self-assess, talking their performance over with a colleague if they wished, before an in-depth discussion with the principal (George).

Staff Cohesion

At the end of Term 4, there had been some improvements in staff cohesion, but all was not rosy. Annie summed this up, saying:

> We do have a common unity and a common goal and a common value that is there – it is just easy to forget that and to get bogged down in the negative bits and pieces. It is more positive than it was though there is still room for improvement (Annie).

The dynamics had changed with the departure of Tom on extended stress leave in Term 3 (Lindy). His confidence and self-esteem had been reduced to the extent where he could no longer cope (Tom). The tension in the school had been eased, people were less defensive (George), more able to be themselves (Julia) and more comfortable in the staffroom (Moira). Moira also announced that she was taking early retirement at the end of the year – privately adding she felt burned out with

the ongoing stress and uncertainly of never knowing if she had done the right thing.

While there was still some residual friction on occasions (Edna), the teachers were generally getting on better together (Lindy), and talking more openly (Alison, Julia). There was still some talk of one person taking centre stage and having too much to say about everything (Lindy), but with other people being more willing to speak up and new staff coming in, this appeared to be having less impact.

4.2.6 Looking to the Future

Looking towards 2001, teachers were keen to carry on with the work they had started. Some anxiety about the impact of a new principal was tempered by an agreement that the teachers had a responsibility to make sure that they continued to build on their achievements in 2000 (Karen, Julia, Annie). There was some optimism about enthusiastic new teachers coming in with fresh ideas (Annie, Alison, Edna) and the potential of the school to forge ahead, if there was good teamwork and good management (Julia).

The teachers had a clear view of the type of principal they hoped would be appointed. They wanted someone innovative and dynamic and who had an eye for where the school might go in the future (Julia). The desired person would be able to galvanise the staff into working together and make them feel good about themselves (Lindy). They would be able to prioritise and delegate (Karen), manage behaviour, have good relationships with the parents and show the school off in its best light in a community (Lindy). This leader would be a Christian and be able to make tough decisions when necessary (Alison, Edna).

4.2.7 Lutheranism in the Story of the School

One of the most difficult aspects of the story to begin to grasp is the significance of Holy Cross being a Lutheran school – both in general and, more particularly, in relation to the *Into the Future* project. There are the obvious signs of Lutheranism – the LIFE curriculum, the daily devotions, weekly bible study and the regular presence of Pastors from supporting congregations. All of the teachers are

practicing Christian, a majority are Lutheran. The vision statement talks of Christian values, while the 'Excellence in Teaching and Learning' statement is more explicitly Lutheran. None of this is surprising. However, the possibility of more subtle processes being at work begin to emerge when you view Holy Cross alongside schools not operating in a Lutheran context, for example, state primary schools. It is then interesting to consider the influence of being Lutheran, and the 'Lutheranism' embedded in the school culture on what might more generally be understood as teachers' professional practice.

The interplay between being a Lutheran and being a teacher was recognised in Alison's comment that in the early years of the school, for some of the teachers being Lutheran was probably more important than being a teacher. Lindy looked back with nostalgia on the successes of those early years, at the same time recognising that the standard of teaching may not have been high. This is perhaps an indication that teacher professionalism was being defined by a mixture of Lutheranism and more general educational practice. *Into the Future* identified student discipline as a significant problem in the school, while forgiveness and renewal are central values supporting the vision statement. As Annie sees it:

> …a lot of it is values – the way you see kids as a special creation. They all have a part of God in them somewhere and God has got a plan for each and every one of them – so even when we are disciplining kids, we still have to remember they are children of God and the forgiveness side of it.

Tom suggests that the emphasis on forgiveness is perhaps at the expense of providing a structure for students. Although there are rules and guidelines, there is always the expectation of forgiveness and so the consequences of action can get lost. Moira wonders how often you can, "forgive, forgive, forgive – without it all becoming very wishy-washy". There was also some ambivalence about taking on leadership positions. Embedded within the school culture was the expectation that Lutheran teachers "worked for the base-rate" putting in a lot of hours without expecting any extra money. There was a tension between greed and Lutheran professionalism in applying for a Leading Teacher job (Alison). Finally, while the sharing of successful practice is an activity strongly encouraged within the discourse of *Into the Future,* in the Holy Cross context such a practice may be

viewed as an indication of teachers lacking humility and being out to sell themselves (Lindy).

If the same kind of logic is applied to the school, some tensions are immediately apparent. Declining enrolments prompted *Into the Future* - yet there is a confusing relationship between being viable in the education market and having an identity as a Lutheran School. George clearly was not comfortable with this, yet *Into the Future* gave him the clear role, as principal, of promoting the school in the community. He admitted he was grappling with the whole notion of marketing the school and tending to move closer to his teacher role. Lindy sums this up:

> If we are to pick the school up we have to promote ourselves more and tell people we are doing a good job but that doesn't fit into what the ethos of this school is all about – it is a humility thing. You can't put your best practice forward because of this humility approach – it is a bit of a Catch 22 (Lindy).

However, in some ways the school was moving away from its Lutheran roots, almost by default. The number of staunchly Lutheran staff was declining and new teachers were coming in. In a teaching staff of ten, two long serving teachers departed at the end of 1999, and three more (including George) in 2000. Two years earlier, only one teacher was non-Lutheran. In 2000 there were two, and in 2001, four. Things were changing with the changing staff - for example, the 'unofficial' censure on talking about evolution or dinosaurs, was lifted and:

> …the fairly staid hesitancy to move forward…that kind of teaching or that kind of staff member, though I think we are moving away from that (Alison).

A staunch Lutheran himself, George acknowledges that the school was probably moving from a Lutheran ethos to a more broadly Christian ethic – though this was not intentional:

> We have not been able to maintain the strength of our Lutheran background in our teachers as much as we would like…(and) with our staff changes, virtually all the teachers who were accredited in a Lutheran Theological education have gone (George).

At the same time, George is saying that the school vision statement still needs more input from the Pastors. This desire to embed Lutheran values more firmly in

the school's vision, at a time when the school appears to be evolving away from such a clear focus, is an indication of an identity crisis. The school has a strong Lutheran history, but the reality now is that almost half the staff and many of the students are non-Lutheran (Edna).

4.2.8 Final Reflections

During the second round of interviews in October 2000, teachers talked about the kind of principal they hoped would be appointed – someone whose enabling leadership would allow them to move forward, building on the changes achieved during the year. Some concern was expressed that the School Council was likely to appoint a principal with a 'traditional' view of the principalship. As one teacher noted:

> I think they will look for a Lutheran man…I think that is just a little bit to do with the culture of the Lutheran Church that it tends to be men very much in the more senior positions.

As there had been some delay in the advertisement of the principal's position, the possibility of a late appointment from a small pool of applicants was also raised. Concern about the selection of a new principal was again the subject of debate during the focus group discussion in late November that year. George Stolz was due to leave in December, but no replacement had been appointed. For the teachers a good deal rested on this appointment. When the 2001 school year began, events had taken a somewhat unpredictable turn. An interim principal had been appointed for a period of twelve months. The acting principal was the chair of the School Council – a female Lutheran secondary school teacher who had taken over leadership of the School Council during 2000. She was coming into the school with a good knowledge of the *Into the Future* project – at least from the School Council perspective. Indications were that the teachers would have the opportunity to continue developing their new patterns of interaction, moving away from a culture of extreme isolation towards a culture of collaboration, that could begin to impact on classroom practice.

4.3 Rainbow Terrace State School

4.3.1 Background: A Glimpse into the Past

Rainbow Terrace State School opened in the mid-1960s to serve a semi-rural community gradually being enveloped by suburban spread. This story begins thirty years later, in 1996, a time of immense difficulty in the school and the start of a new era. The years leading up to 1996 were characterised by staffing stability:

> When I came to school, and the other teachers with me, we were the first new teachers in eight years. They'd had the same principal for years and years and everything was very set and entrenched. There were no resources (Wanda).

Problems were arising, however, as the established procedures and patterns of teacher student interaction no longer seemed to be working (Julia, Wanda, Nicole). Over time, the changing demographics of the community had been reflected in a changing student population. An increasing number of children attending Rainbow Terrace were difficult to deal with (Nicole) and many had problems at home (Julia) arising from the social and economic difficulties faced by their families (Samantha). The teachers were finding it increasingly onerous to teach their students, as the familiar ways of operating were losing their effectiveness.

Problems came to a head after the departure of the principal who had been in the school for many years. Two short-term acting appointees were followed by a disastrous and undemocratic principal who wrought havoc in the school (Wanda, Alexis). Those who experienced the events of 1996 talk of the major crisis and high stress levels which made teachers quite dysfunctional.

> Behaviour management was out of control and it was the sort of scenario where…after a few months you'd be a gibbering wreck just trying to deal with it (Alexis).

Supporting each other, the staff presented a united front, taking up the leadership issue through their Union and Education Department intervention. The principal took leave and was replaced by a new acting appointee, Douglas Scott, now the permanent principal.

A number of teachers left as a result of the problems in 1996 and within the education community Rainbow Terrace had a reputation for being a tough and terrible place (Chris). Then, the school was in survival mode. Four years later it has changed:

> We are no longer just surviving, we are thriving and we are making a difference to the kids…It is now a very calm school…just so much has changed in the way we deal with those children. It has been a remarkable transition since 1996 (Samantha).

There is now a perception out in the education community that Rainbow Terrace is a good place to be (Samantha, Alexis, Margaret). The appointment of Doug Scott as principal was a critical event in the story of the school. He "had the philosophy and approach which was exactly what the place needed" (Alexis). He immediately started to address issues, supported the teachers and spent accumulated school funds on much needed teaching resources (Alexis, Wanda).

4.3.2 A Perspective on the Present

The 1996 story of Rainbow Terrace was of a school in crisis with dysfunctional teachers and out of control students. In 2000, the story had changed to one of organisational efficacy, with calm prevailing. To understand this, it is necessary to explore some of the factors that underpinned this transformation. These factors are also significant in the way that IDEAS was subsequently enacted in the school.

The change at Rainbow Terrace could not be attributed to any significant change in the make up of its student population. According to Doug Scott, they are still a difficult bunch and include "some damaged kids, fairly desperate cases". Many have problems at home that impact on their behaviour and learning in school (Julia). There are students that are angry and non-conformist (Alexis), and many that have no automatic respect for authority (Doug). However, it is no longer the behaviour that distinguishes the school, but the way that it is dealt with. The students are now managed quite differently (Wanda).

This change appears to have been strongly influenced by a combination of factors: the cohesion of the staff community; the qualities of the principal; and the

theoretical underpinnings of the principal's leadership practices. The staff cohesiveness was something that Doug Scott was able to build on to very good effect as he sought to bring coherence to the school's operation though the very intentional use of a Total Systems Model. Doug's understanding of the dynamics of whole-school operation and the process of change is clearly situated within this Model (Exhibit 5) which, he says, provides "the common language, the common understandings, and the parameters for a disparate group of teachers to work in" (Doug).

Staff Cohesion: An Ongoing Strength

The staff cohesion which helped Rainbow Terrace through a difficult period was a strength which Douglas Scott built on to improve outcomes, and continues to be a feature of the school. The teachers get on well together (Margaret, Jenna) and the school has a comfortable, nurturing feel regardless of staff changes (Rachel, Claire, Samantha). The staffroom is the focus for teacher interaction. Despite its calm, Rainbow Terrace is still a challenging place to teach and the staffroom is a place to relax and be sociable (Wanda).

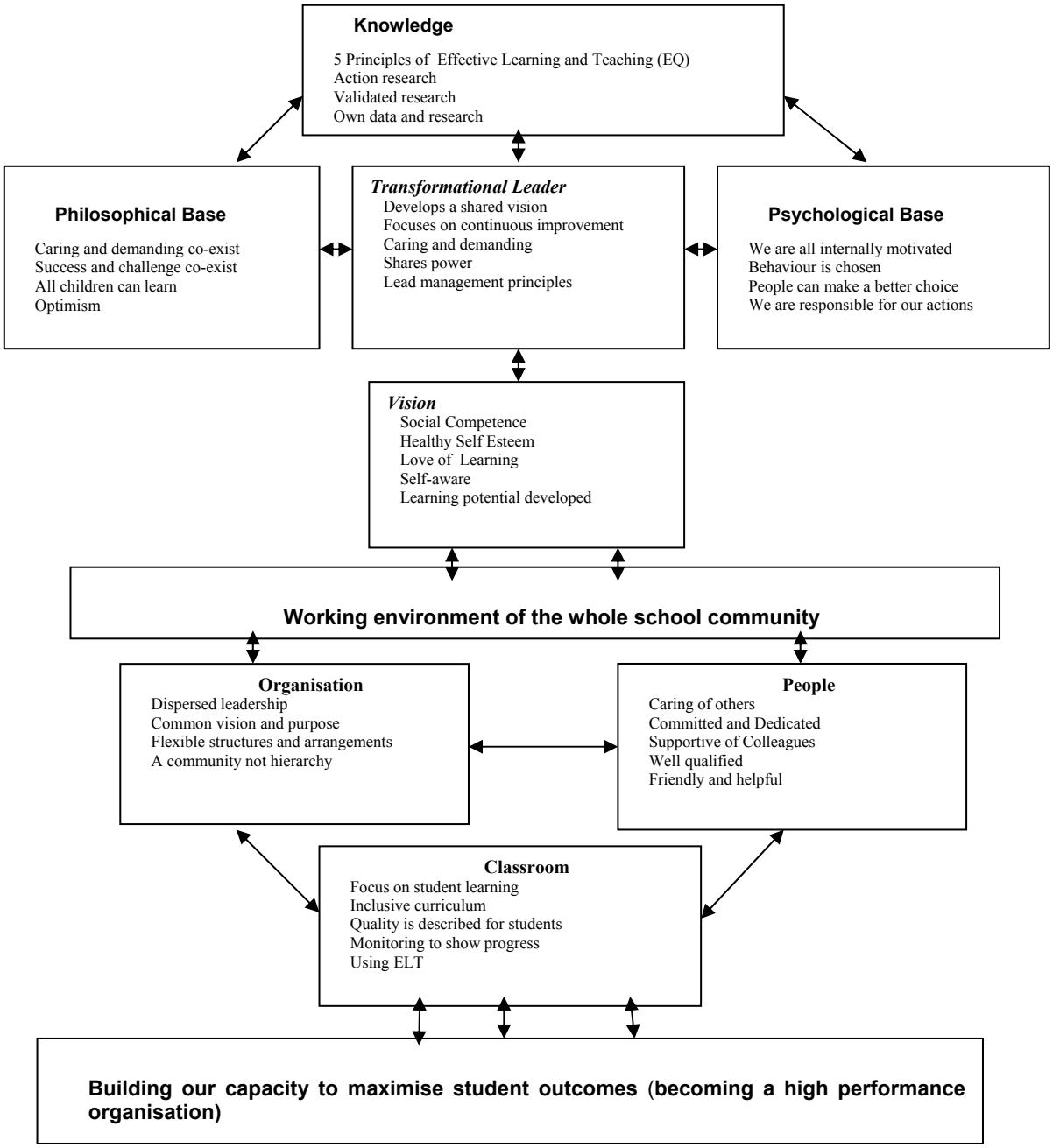
> There's not a lot of sharing about 'what I do in my classroom'…Mainly its just social, joking and laughing. If you do start talking about school people go 'Time Out. Don't want to hear about that. Tell us what you did this weekend' (Samantha).

Although most of the staffroom talk is social, it is fine to get support from colleagues in times of stress (Jenna). Teachers having problems in their classrooms or dealing with particularly difficult students can talk about this in a climate of trust and support (Jo, Julia, Lesley, Alexis, Nicole).

Teachers support each other in practical ways, too, exiting difficult students to each other, providing cooling off time in particularly challenging classroom situations. This informal arrangement recognises the stresses of classroom life in the school, and provides a broader base for behaviour management. In such a climate, teachers feel valued and respected by their colleagues (Nicole, Samantha, Jenna, Claire).

> People get caught up in the morale here. It's a very supportive staff and people are always willing to say 'look if you are having a bad day with a child, send them over to me for an hour and have a break. They can do work in my room (Jo).

Exhibit 5: Rainbow Terrace State School Total Systems Model (May 2000)



The following is drawn from Douglas Scott's explanation of how the Rainbow Terrace Total Systems Model works:

The five interlinked boxes in the upper section of the Model represent the 'working environment' of the school. The Vision, articulated in terms of exit outcomes for students, was developed though a process of intensive consultation with the parent community and the teaching staff – based on the question "what do we want for our kids?" The psychological base of the model draws extensively on Glasser's Choice Theory and forms the basis for behaviour management in the school. The Philosophical Base is the beliefs and values system while the Knowledge Base is a mixture of internally and externally generated knowledge representing the school's authenticated knowledge. The Model only changes when new authenticated knowledge flows into the Knowledge Base and on into other sections. The Transformational Leader box provides an indication of type and purpose of leadership in the school. The lead management principles are also drawn from Glasser theory.

The lower section of the Model consists of three boxes dealing with how the school is to be organised, how people are to treat each other and what goes on in the classroom. The Model provides a means of making the expectations of the school explicit. It is something that teachers can align with. If teachers know what the expectations are, the school can operate without much conflict. The ultimate aim of the Model is capacity building – creating the conditions where the school can build its capacity to maximise student outcomes.

For those teachers who come into the staffroom and socialise together, there is clearly a strong sense of camaraderie and mutual support. It is part of being a member of the Rainbow Terrace team. While all teachers are welcome to join the group, there is a small group that chooses not to participate at this level.

> They don't want to be in with the group of people. They just want to do their own thing and not be part of it (Samantha).

4.3.3 The Principal: Qualities and Approach

The personal qualities of the principal are a significant feature of the change process at Rainbow Terrace. Doug Scott is respected, liked and admired by the staff, variously described as "an unreal boss – so inspiring" (Jo), "one of the greatest people on Earth" (Jenna), "possibly the best person I have ever worked for" (Rachel), and "a great and wonderful leader who gently guides while allowing teachers to be professional people in their own right" (Samantha). Teachers appreciate the systems and structures he has established, the feedback he provides, the optimism he models, the behaviour management climate he has established and his non-coercive approach to change.

Doug believes good school outcomes can only be achieved where there are strong interpersonal relationships. His relationship building with staff is illustrated by his daily visits to each of their classrooms. His tracking of school outcomes through databases also contributes to the supportive environment of the school as he can speak to any parent about their child's learning. There is significance, too, in the way that Doug Scott thinks and the influence this has on his modus operandi. During our first interview, while stressing the importance of knowing the outcomes in advance of developing a process to achieve them, Doug Scott mentioned that in the Meyers-Briggs personality classification he was an INTJ (Introverted Intuitive Thinking Judging). An Internet search revealed some insights of this type of personality[5]. I showed these to Doug at out next meeting, highlighting a range of descriptors, summarised as follows:

- INTJs live in a world of ideas and strategic planning. They have insight into the big picture and are driven to synthesise their concepts into solid plans of

[5] www.personalitypage.com/INTJ.html and www.typelogic.com/INTJ.html

action. They tremendously value and need systems and organisation, putting enormous amounts of time and energy into consolidating their insights into structured patterns.

- INTJs are natural leaders…supreme strategist. They are convinced they are right about everything…and may dismiss others' input too quickly.
- Whatever system they happen to be working on becomes the equivalent of a moral cause to an INTJ. They are committed to finding the best objective strategy to implement their ideas.

Doug Scott's response:

> This is certainly very insightful. I can identify perfectly with that. INTJs are driven to translate their ideas into a plan of systems. That's always a worry, too, you are convinced you are right about things…The parts you've highlighted…I mean they are things that I need to be aware of so I don't kill what the staff do (Doug).

At Rainbow Terrace, the Total Systems Model is a coherent plan of Doug's ideas and their conceptual underpinnings – something he has put considerable time and effort into developing and enacting. Whether his conviction on the 'rightness' of his ideas and the internal coherence of his model has any impact on teacher innovation through IDEAS is a later part of the story. First, it is necessary to take a closer look at the model itself.

4.3.4 The Rainbow Terrace Total Systems Model

The Total Systems Model used at Rainbow Terrace was originally developed by American Educator, Albert Mamary. Doug Scott has worked with Al Mamary since 1994, attending most of his sessions in Australia. He was attracted to this Model because it suited the other major influence on his thinking, the psychology offered by William Glasser's Choice theory and its accompanying process, Reality Therapy.

The Rainbow Terrace Total Systems Model provides Doug Scott with a blueprint for school operation and a framework for change, guiding his actions and informing his leadership. It is a detailed plan of action now supported by a comprehensive school policy framework in which expectations are clearly outlined and outcomes are monitored. As an example, the psychological base is

reflected in the behaviour policy based on student self-management. The school has school-based benchmarks for reading, spelling, writing, algorithms, and technology skills. A data-base tracks individual student progress providing schoolwide student achievement data which allows individual student progress, and class progress to the tracked and both students at risk and teachers in difficulty to be identified.

The Model also provides a framework for the social fabric of the school – with considerable emphasis on relationships of trust and support and lead management principles employed to involve teachers in change, giving them choices in the process. The positive staff relationships in the schools have been reinforced and extended.

4.3.5 The Move into IDEAS

Clearly, the school had changed significantly between 1996 and 2000. Doug Scott had worked with staff and parents to address all eight areas in the Total Systems Model and develop a coherent organisation. There were more threads to pull together, however, prompted partly by systemic initiatives and partly by Doug's perception that the Model needed a way of explicitly translating the high level beliefs into classroom practice. He identified 'school-based pedagogy' as a new area to be addressed and saw IDEAS as a vehicle to achieve this. IDEAS provided a process for exploring school-based pedagogy and the kind of authenticated knowledge that could flow in and change the Model. Furthermore, IDEAS was underpinned by its own systems model, the Research-based Framework, which contained Schoolwide Pedagogy as a major component.

> The deficiency of the Total Systems approach is that it hasn't got the bit that says what we will do in the classrooms. It hasn't described the pedagogy. What the Research-based Framework has done is focused heavily on the pedagogy of the classroom (Doug).

Doug Scott had confidence in the rigour of the *ideas* process and believed that its approach was broadly consistent with the Total Systems Model, for example, in relation to dispersed leadership.

4.3.6 IDEAS at Rainbow Terrace

Rainbow Terrace joined the IDEAS Project in Term 1, 2000 as one of a cohort of twenty-six schools within its Education District. They started with a volunteer IDEAS School Management Team, made up of classroom teachers, and two school based facilitators, Wanda, a teacher and Alexis, the Deputy Principal. A second teacher, Samantha, also stepped in to assist with facilitation in the early stages, as the deputy principal was away for several weeks mid-year.

During a facilitator training day in Term 2, 2000, the three facilitators talked about the potential benefits and the challenges of IDEAS in their school. They foresaw getting teachers to share their understandings as a challenge, because although "the staff are very cohesive, they are also very led" and not used to discussing their practice with each other (Wanda). They talked about Doug's discomfort with a "meandering" process but of his willingness to participate in IDEAS rather than to lead it. They agreed on the need to revisit the Total Systems Model because the teachers didn't have ownership and speculated on how the document might change depending on how the process unfolded.

> Maybe the Model will change because we're moving on a different way. It doesn't really matter – because whatever it does, it's been a group decision. It's been everybody doing it. That's the beauty of this. We don't really know what it's going to grow into (Wanda).

They laughed at the prospect of IDEAS producing 'a five-headed monster' of empowered teachers trying to take over the school when they are supposed to be teaching children.

The Diagnostic Inventory Data

During Term 2 the IDEAS diagnostic inventories were administered to teachers, parents and upper primary students. The responses from all three groups were overwhelmingly positive. The teacher data tell the story of a cohesive school with strong relationships founded on mutual respect and trust. They tell of a school where the staff see themselves as highly competent professionals, morale is high, communication is good and there is pride in the school's identity. While teachers and administrators respect each other's work and responsibilities, there is scope for shared leadership and teacher participation in decision-making. It is a school

where student self-esteem is actively fostered and their learning monitored against agreed standards.

The story of Rainbow Terrace, as told by the data, was one of the most positive stories to emerge from the District IDEAS cohort. The teachers' only major concern related to the physical facilities of the school, something they could do little to improve. They felt some uncertainty, however, about whether there was shared agreement on what excellence in teaching might mean at the school and how much they systematically examined their practices in light of agreed standards for high quality instruction. Even greater uncertainly existed about whether the school had processes which allowed teachers to reflect together, to identify and share their successful practices and so learn from each other.

The facilitators presented the results of the diagnostic inventories on a student-free day at the start of Term 3. They planned the day with great care, providing opportunities for the staff to reflect collectively on and make meaning of the data. The teachers identified the school's particular strengths and, in the absence of any real issues other than the physical facilities of the school, talked about the pedagogical aspects where they had rated their practice as reasonably good but not highly successful. There was also discussion on how to reach out to the small group affected by low morale. The facilitators were pleased with the professional dialogue generated by the data and the staff's high level of engagement in the proceedings.

IDEAS: Moving into the Next Phase

Following the staff analysis of the data, the facilitators consulted with the IDEAS Management Team and decided to move straight into exploring personal pedagogies, as a first step in developing a schoolwide pedagogy. On a student-free day in mid-August, the teachers individually explored their pedagogies by recording their beliefs in a range of areas, including: the purpose of education; managing behaviour; effective teaching and learning; relationships in the classroom; teachers as professionals, children as learners and human behaviour. Each teacher completed a pro-forma, making their beliefs explicit, and then describing what some of their beliefs might look like in practice. These were displayed around the staffroom – forming the basis for ongoing whole staff

discussion. Three teachers quietly made an exit during the activity, possibly because they felt uncomfortable making their beliefs explicit (Samantha).

The facilitators were pleased with the success of the day, reflecting that the teachers were enthusiastic and still talking about the activities several days later. Soon after, to build on the momentum created, release time was arranged so the teachers could explore commonalities in their individual pedagogies, in each of the specified areas. Successful classroom and schoolwide practices that matched the common beliefs were identified to illustrate what these common beliefs might look like in practice. Doug was excited that the teachers where uncovering the pedagogy of the school, and could see long-term benefits.

> They are identifying the pedagogy and hopefully we can publish a pedagogy circa 2000 at Rainbow Terrace. Once that is done…we can compare that with where we've come from and reflect on that. (Also)…we can modify, grow and develop it because the pedagogy of 2000…may well be different from 2007 or 2008 (Doug).

During Term 3, the school had moved from the *discovering* phase of IDEAS straight into the development of schoolwide pedagogy, bypassing activities concerned with developing a school vision. While the facilitators were operating within the conceptual framework of IDEAS, a slight tension between the Research-based Framework and the Total Systems Model was beginning to emerge. Alexis reconciled the two by assuming that the Total Systems Model would evolve as a result of IDEAS:

> …we are going through our own process of unpacking teachers' individual pedagogy and then looking at where is fits in the existing Model and maybe developing that further so that it does suit what we eventually come up with. The Total Systems Model will probably look different, I think, as a result of the discussions that will take place between now and say the end of the year (Alexis).

Samantha was confused about the whole visioning aspect – she could not reconcile her understanding of the meaning and role of 'vision' in IDEAS with the exit outcomes vision in the Total Systems Model. Vision was being used in relation to both, but without any acknowledgement that the term meant different things in the two models. This was conceptually confusing to Wanda too – but they were unable to pinpoint the source of the confusion. It was easier to

concentrate on developing a schoolwide pedagogy as the models did not clash in this area.

The *ideas* process slowed somewhat towards the end of the school year though one session was convened in the middle of Term 4 to look at the 'shared beliefs about human behaviour' statements drawn from the personal pedagogies, and to consider what these statements might look like in practice. This discussion ultimately led to agreement on three shared beliefs (see Exhibit 6). The session was productive, but there was insufficient time to begin to explore any of the planks relating to instructional processes in the school.

Exhibit 6: Rainbow Terrace: Shared Beliefs about Human Behaviour (Nov. 1999)

The first plank of the Rainbow Terrace schoolwide pedagogy related to shared beliefs about human behaviour.

Reflecting the Choice Theory underpinnings of the Total Systems Model, the staff agreed to include the following beliefs:

- All behaviour is internally driven to meet each individual's unique basic needs.
- People choose their own behaviour and are responsible for their actions.
- Most behaviour is learned .

IDEAS: Taking Stock in November

At a meeting in mid-November, the IDEAS Management Team looked back over the semester, feeling positive about the progress that had been made with exploring pedagogies and with the increasing professional dialogue between teachers.

> I think the journey has started…unless some major catastrophe happens, you couldn't stop it now. We are already on the way (Samantha).

They had planned to use the student-free day at the start of Term 1, 2001 to continue developing common pedagogical beliefs but during the meeting discussion turned to the school vision. None of the Team members really knew what the current vision was or how it fitted with the other boxes in the Total Systems Model. Recognising the importance of having an inspirational statement, one teachers could remember and that would guide their practice, they became

highly enthusiastic about using the student-free day to develop a vision for the school:

> We want an inspirational statement that encapsulates our school, captures our imagination, says this is what we are really about and keeps us focused…So it is not just back to the school, it is starting a whole new chapter in the life of Rainbow Terrace (Samantha).

By the end of their meeting, the IDEAS Management Team were enthusiastic and ready to move forward. While they continued planning ways of synthesising the personal pedagogical beliefs, their focus had switched from schoolwide pedagogy to visioning.

A week later the focus had changed and a framework of schoolwide pedagogy had been drafted on the staffroom whiteboard. While Doug conceded the possibility of having an overarching inspirational statement to guide pedagogy, he could see no need for a new vision. The school already had the exit outcome statements at the centre of the Total Systems Model.

> In the Total Systems Model, the vision is about what the clients want. When I say vision, I'm talking about the 'outcomes of learning' type vision. Remember the question was, 'what do you want for your child at the end of 7 years'…I can't imagine any bigger vision than that (Doug).

The year was drawing to a close and Doug was keen to get the process moving to meet his own administrative timelines. Drawing on what the teachers were producing, he had developed a 'big picture' of the schoolwide pedagogy, and wanted to synthesise his understandings and consolidate his thoughts into a structured pattern - a School Based Pedagogy Model consistent with the Total Systems Model.

By November, although the teachers had only explored the human behaviour element of their pedagogical beliefs, Doug could see the way forward. The draft framework had two major elements: understanding human behaviour and instructional process. Provision was made to expand on each of the shared beliefs about teaching and learning, and to illustrate what they might look like in practice. The completed document, elucidating shared beliefs about successful practice at Rainbow Terrace Stare School, would become a performance standard

for teachers, its use enhancing the distinctive identity of the school (see Exhibit 7).

This was the outcome that Doug sought from IDEAS.

> The outcome (of IDEAS) is the "How we do things at Rainbow Terrace" document. Once this is published I want to be able to say to teachers - if that is our professional standard, how do you want to engage with it?…Each one of those planks can be explored. If a teacher is doing these things what would we see, what would we not see?…That's how I am going to match up teacher performance with that (Doug).

Exhibit 7: Rainbow Terrace State School : Beliefs about Teaching and Learning (extract)

Beliefs about teaching and learning (instructional processes) formed the second plank of the Rainbow Terrace schoolwide pedagogy. This extract is illustrative of the document. See Appendix 8 for the complete version.

Beliefs about Effective Learning and Teaching Practices

Cater for different learning styles and needs by providing a supportive and encouraging environment which extends and challenges the ability of all students.
Teachers and students are constantly self-evaluating.
ELT relies on supportive teacher/student relationships.
The teaching style must compliment the learning style.
Learning experiences must be relevant to the learners.
Success in learning→ Risk taking → Self esteem.

Looks Like:
Students and teachers constantly self-evaluating
Teachers modifying and varying programs according to children's needs
Children taking risks, taking ownership, confident, enthusiastic.

Beliefs about Managing Behaviour

To encourage and teach children to make wise choices.
All behaviour has a consequence (positive, neutral or negative).
To cater for group dynamics.
Consistently support appropriate behaviours.
To provide a supportive learning environment.

Looks like:
Teach social skills in ethics, support the code of conduct and affirm appropriate behaviours.
Making learning needs satisfying (re: internal motivation).
Create a relaxed, peaceful and clam environment.
Consistently modelling: clear expectations; negotiated guidelines; fairness and tolerance; respect, consideration and dignity.

An emerging tension between IDEAS, with its flexible timeline, and managerialist requirements was averted when Doug agreed that work on the schoolwide pedagogy framework should continue the following year.

The Two Models: The Tensions and the Overlap in Purpose

At the end of 2000, it was interesting to look back and consider the evolving relationship between IDEAS and the Total Systems Model. Doug acknowledged that they were coming from two different paradigms, but the implications of their co-existence were not openly discussed in the school. The facilitators had assumed that the Model would evolve as IDEAS progressed, perhaps underestimating Doug's ways of thinking, and his unwillingness to change the Model other than to address the deficiency he perceived.

> I would be more inclined to say…throw the Model out. I don't like compromise. I'll do it your way or my way. With a compromise, neither of us is happy. (However)… If they come to me and say look we feel (the Model) is deficient, I would agree it is deficient in the area of school-based pedagogy and…we can use IDEAS to explore that…I'm very comfortable with that (Doug).

Doug was unlikely to be confronted, however, because the staff thought so highly of him that no-one wanted to upset him (Samantha). Besides, he had been able to exert his influence on IDEAS through discussions with the facilitators – guiding the development of the schoolwide pedagogy so it remained consistent with the Model.

Doug was allowing teacher leadership provided that any changes suggested were within the value system he had established. He could not allow changes that did not fit:

> For example, someone (previously) came up with the idea of streaming…That was outside my belief system and outside of the parameters that we have set up…I killed it basically because it was a practice that was inconsistent with the Model that we use (Doug).

Similarly, he understood parallel leadership as teachers leading within the defined parameters:

> Parallel leadership, I am perfectly comfortable with it. That is why the parameters are there. If we work within agreed parameters why can't we all be leaders (Doug).

The teachers, however, had a different conceptualisation of teacher leadership. They were interpreting their role though IDEAS, seeing scope for leadership in the area of pedagogy, working towards shared goals and improving learning across the school (Samantha). Increasingly, teacher leadership was understood in terms of shared power and classroom teachers having the responsibility to make decisions about shared pedagogy and its translation into practice (Jo). For Doug, IDEAS was the means to achieve a specified end – a definitive document on school pedagogy. For the teachers, IDEAS was potentially more empowering, and by the end of 2000, they were feeling more confident about moving on.

> I think he has pulled this school a long way but that's the thing, he's pulled the school a long way and we all value him and he's a great boss, we don't want to work for anybody else but I see that there is only so far you can you. If you want people to go that big step further, there need to be other ways of getting them to do it (Tina – emphasis in original).

4.3.7 Carrying Through to 2001

In 2001, Rainbow Terrace continued working on the second section of the pedagogical framework, and a third section on school practice was added (see Appendix 8). Finally, through a visioning process coordinated by the facilitators, the teachers developed a vision for the school (Exhibit 7) which they provisionally adopted in August 2001.

Exhibit 8: Rainbow Terrace State School Vision Statement (August 2001)

Choices:

Learning to Live
Living to Learn
Together we can

This was added to the statement of schoolwide pedagogy. However, while a vision statement had been developed, no decision had been made about its significance. For the teachers it was an overarching inspirational statement to guide their practice. For Doug it was a vision for pedagogy, because the Total Systems Model remained the overriding model for the organisation (Alexis). The status of the vision developed by the teachers remained under discussion. Around this time, Alexis reflected that she believed the vision developed by the teachers,

referred to by Doug as the pedagogical vision, would eventually become the school vision.

> It is my belief that this will become the school vision. I'm not sure if that's the way Doug sees it at this point. He has been referring to it as the pedagogical vision but we will continue those discussions around the issue that there can only be one vision and it needs to be the common vision (Alexis).

Issues had also arisen about the pedagogical framework. The facilitators and IDEAS Management Team planned to continue working with the very comprehensive framework, distilling it, and trying to extract its essence in a few brief pedagogical statements. Doug was not keen for this to happen. Furthermore, the IDEAS Team were concerned that he had added to the "Looks like" areas of the framework to reflect systemic initiatives.

> He has expanded and written an elaborated version of the ''Looks Like' bringing in some of the systemic initiatives…The Management Team want to remain true to this at this time – and see alignment with system initiatives as a separate process (Alexis).

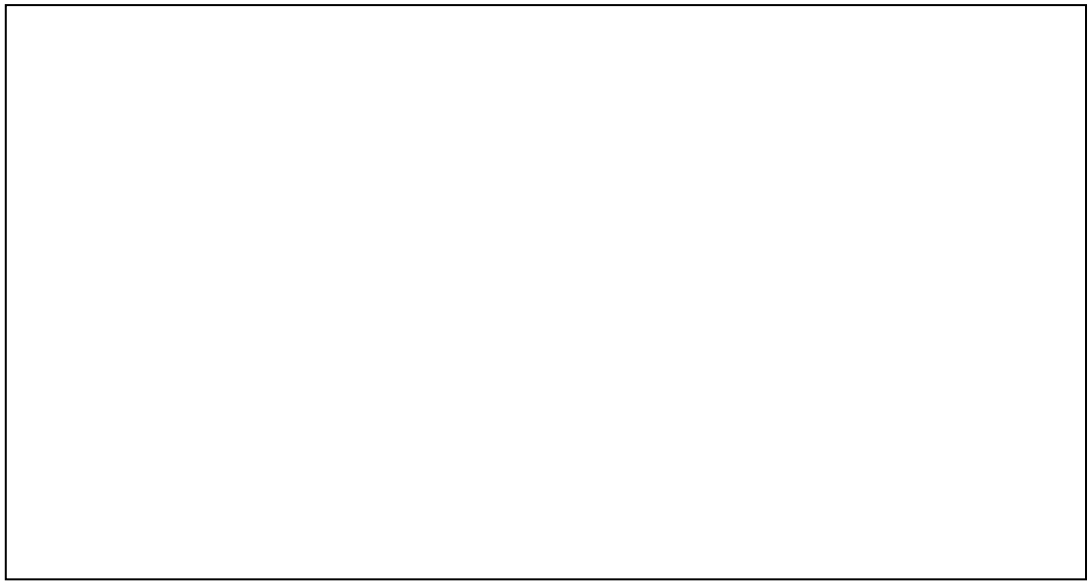
Something of a "collision of purpose" was emerging. The Management Team was subsequently persuaded by Doug that the pedagogical framework should be tidied up and then published in its extended form. The possibility of formulating a succinct set of pedagogical statements had not been abandoned, however. The facilitators continued to work on this themselves, as they believed it was important. They needed the more concise statements to move on to their next step – the formation of dialogue groups where teachers could explore the alignment between their pedagogical beliefs and classroom practice. They did not believe that the Management Team should have to seek permission to carry on with this work.

There was a growing realisation of the extent to which Doug had directed the process – initially though his ongoing discussions with the facilitators, and more recently though his increasing involvement in Management Team meetings. In mid-2000, the facilitators were seeking to ensure the maximum involvement of the Management Team in IDEAS discussions with Doug, to avoid "reinforcing old patterns of hierarchy" (Tina).

Looking Optimistically to the Future

By August 2001, some of the dynamics of school operation had come to the surface, and the influence of the Total Systems Model was beginning to be understood. In Term 4, the IDEAS Management Team, working with Doug, went on to develop a one-page statement of schoolwide pedagogy (Exhibit 9) which was added to the Rainbow Terrace School Based Pedagogy document.

Exhibit 9: Rainbow Terrace State School: The Twelve Pedagogical Principles



Teachers in the IDEAS Management Team had grown in confidence and were increasingly prepared to make decisions.

> That group now – they are making more decisions on their own than they would have 6 or 12 months ago…There is a desire to continue following the *ideas* process as we believed it should have gone from the beginning. We still don't know where this is going to end up – but the enthusiasm and motivation that the Management Team have now is really inspiring (Alexis).

There was now some awareness of the tensions between IDEAS and the Total Systems Model, and the topic was open for discussion. For Alexis, the Model had a definite purpose when Doug first came into the school and began to create desperately needed change. So much has now been achieved that it has lost its relevance.

> I think the Model is irrelevant. It has had a purpose, four or five years ago when Doug came in to create change which was desperately needed but I really think it has outlived its usefulness. Whether that becomes apparent as this journey continues, I don't know (Alexis).

4.3.8 Final Observations

Given the principal's very specific purpose in seeking to develop a school-based pedagogy to enhance the Total Systems Model, there was a good chance that IDEAS would end once this outcome had been achieved. This did not happen, however. Once the co-existence of the Total Systems Model and IDEAS had been recognised, the tensions between them could be viewed as a source of creativity rather than confusion. The school was cohesive, teachers were increasingly engaging in professional conversations, building new patterns of interaction and collaboration. Teachers were taking on pedagogical leadership roles and alternative ways of viewing school operation were emerging. A significant group of teachers were energised by their participation in IDEAS, and they were keen to deepen their levels of shared understanding.

A successful application was made for systemic funding so that the professional conversations could be formalised. Dialogue groups were formed – providing teachers with the opportunity to share their insights and experiences of trialing aspects of the schoolwide pedagogy in their classrooms. While it is not clear where IDEAS will lead, it clearly has the potential for further development.

4.4 Willowbank State High School

4.4.1 Background: Setting the Scene

Willowbank is a State High School located in a geographically isolated but prosperous rural community in Southern Queensland. A variety of successful agricultural activities, their associated manufacturing industries and support services impact positively on this small town, providing relative stability and low unemployment. In the midst of all this is Willowbank, a high school with around four hundred students and a staff of thirty-seven, some of whom are well-established residents of the town.

Despite its remoteness, Willowbank could be described as an innovative school that has been involved in a series of initiatives. Currently, the school is a Museum Magnet School, providing students with access to the resources of the Queensland Museum and connecting them to the Smithsonian Institute in Washington. It is a

trial school for the Education Queensland (EQ) New Basics curriculum project and progressively reconceptualising its Middle Schooling. Willowbank's strong links with local industry have attracted attention state wide.

For the purposes of this account, these initiatives form part of the background of events, included as indicative that Willowbank is a school involved in a range of innovative activities. The school renewal project which is central to this story, however, began indirectly in 1997 when the school was engaged in *Leading Schools*, an Education Queensland site-based management initiative. While this folded with a change in State Government, the momentum it had created flowed into IDEAS. This school began working with this whole-school renewal process in mid-1998, under the guidance of Bill Thompson, a university based external facilitator, who continued working with the school as one project merged into the other.

4.4.2 IDEAS at Willowbank: An Uncertain Start

In August 1998, Bill Thompson compiled diagnostic inventories to collect data from the teachers, students and parents at Willowbank on their perceptions of various aspects of school operation. A preliminary analysis of the teacher data indicated that while some things were clearly going well, the staff had serious concerns. The next step was for the teachers, as a group, to begin to make sense of what they were saying and to consider the impact of that on the school's future development. Problems arose almost immediately as initial attempts to make sense of the data were thwarted by meetings held at short notice and problems with data interpretation. For a while, there was confusion about what the data meant:

> …we got the data back and I remember not being able to interpret what it meant. I was thinking – is it good or bad? In fact it turns out that it wasn't that good (Emma).

This was clarified by Bill during his next visit. The teacher data presented a picture of the school where many individual teachers believed they were doing an excellent job, but where there was no common agreement about what teaching excellence at Willowbank might mean and no shared vision. In the school, there was a noticeable lack of cohesion and conflict resolution processes weren't

working effectively. Teachers did not feel valued by the parents and morale was low. One teacher recalls:

> When we got the survey results back, I was really shocked at how negative it was. I didn't think that staff morale was that bad or certain opinions of the school were that negative (Zoe).

In an attempt to move things forward, a workshop was planned for November, run by a different (less experienced) external facilitator. It aimed to start teasing out a staff view of what constituted teaching excellence at Willowbank and a number of issues began to emerge for consideration. More memorable in later recollections of this meeting was the behaviour of some staff members who resisted and even disrupted the proceedings. There was a very positive outcome, however. A group of ten people, unhappy with the behaviour of their colleagues and wanting to make a contribution to change, volunteered to work together to take the process forward. This was how the IDEAS Group came into being. It was this core group that worked together with great effect, carrying the project forward and forging themselves into a professional learning community.

The composition of the IDEAS Group was fortuitous. The ten volunteers represented a range of age, experience, backgrounds, beliefs and positions held in the school.

> Brilliant, it's been the best mix. Had we handpicked, we probably wouldn't have handpicked the group that got together so the fact that people voted with their feet and joined was excellent (Michelle).

This was to prove a significant factor in the development of their professional community. The young teachers valued the professional knowledge and experience of their more senior colleagues and were in turn valued for the freshness of their contributions, the worldviews and up to date theoretical knowledge they brought with them (Zoe, Geoff).

Another notable factor was the muted role played by the principal who stepped back allowing Michelle, a deputy principal, to take a significant role in the group. Michelle, a committed innovator and initiator of many projects, was the internal facilitator of the process and a person who could provide the resources to release group members for meetings during school time. She also provided the structure and the impetus for the group's meetings, and played an important role in

communicating with the rest of the staff. Michelle liaised with the external facilitator, Bill Thompson, passing on his thoughts and suggestions to the group. She variously refers to herself in this role as 'linchpin', 'referee' and 'sheepdog' and reflected:

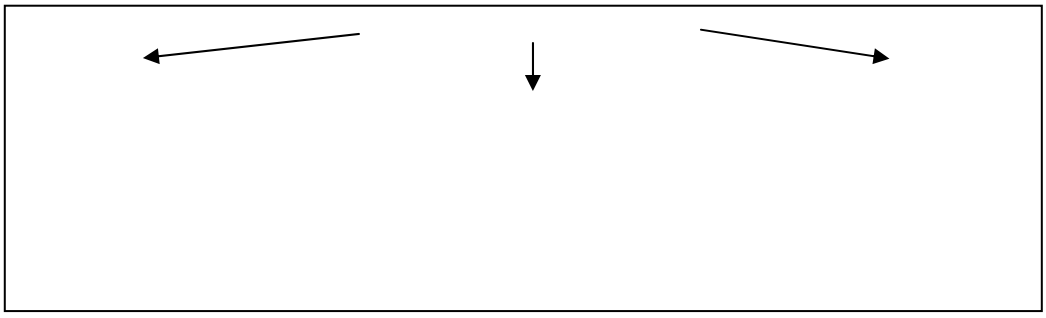
> It was a challenge for me as I can be very dominating - knowing where I want to go and moving people in that direction. This meant I had to liaise and facilitate rather than tell. Bill was good…(his approach) made me stop and think and value others opinions. It was really important for me not to take over but to be the organiser, to facilitate them getting together, to ensure they got together, to ensure that the meetings had some direction (Michelle).

Michelle's role in the group and her previous track record as an instigator of projects was interesting. The involvement of classroom teachers in the group indicated that IDEAS was not a top-down initiative, giving it more credibility among the staff (Zoe). This was a significant factor, as it helped IDEAS to avoid being cast as 'another one of Michelle's projects' (Geoff). Initially some teachers were cautious believing that this project may be the enthusiasm of the moment soon to be replaced by another new initiative (Joshua, Geoff, Gavin). Some never really got beyond their suspicions that IDEAS was coming from Michelle (Blake).

4.4.3 The IDEAS Group Begins its Work

The IDEAS Group met twice in November to begin to gain an understanding of the data and to formulate a process for developing a shared school vision. Bill came to the second meeting where the group developed the basic outline of a vision statement (Exhibit 10) and a plan of action. This was presented to the staff at a successful and productive meeting (Michelle), where agreement was reached on a draft vision and some focus areas for consideration in 1999.

Exhibit 10: Willowbank State High School Draft Vision (November 1998)



At the beginning of 1999, the IDEAS Group met to amplify its plan of action, and the following week involved the whole staff on a student-free day. That day, having reminded the staff about the *ideas* process and its application to Willowbank, the focus turned to higher order thinking skills, one of the priorities identified the previous year and reflected in the draft vision. The staff then generated around sixty-five higher order thinking questions. The following month, Bill Thompson met with the IDEAS Group and they continued to work on the draft vision statement, considering now how they might incorporate a higher order thinking framework into the vision. In March, the group condensed all the higher order thinking questions generated by the staff into seven questions and began to consider relating each question to a specific concept. By the following month, the vision, concepts and questions had been further refined (See Exhibit 11).

Exhibit 11: Willowbank State High School: Vision and Schoolwide Pedagogy (April 1999)

Willowbank SHS: A school community for the 21st century

Together we achieve:

- well-rounded graduates
- an enriched community
- improved vocational/training prospects

Concepts/Questions:

SELF-AWARENESS: What does this experience tell me about myself?

CRITICAL REFLECTION: Why am I doing this?

PERSONAL DEVELOPMENT: How has this contributed to my development?

COMMUNICATION: How could I demonstrate what I know?

COOPERATION: How does this experience enable us to learn from each other?

APPLICATION: How can this be applied now or later?

ENRICHING COMMUNITY: How does this enrich out school community?

FUTURE DIRECTION: What will this be like in the future?

The IDEAS Group now believed it was time for them to trial what they had produced by taking it into their classrooms and working with it. Individually, they specified how they wished to trial the concepts and questions framework, and

how they would keep track of their progress. In the middle of June, the group came together with Bill Thompson for a day to report on the results of their trial. The meeting provided the first systematic insights into how the concepts and questions might be transposed into practice. For several hours, group members took turns to present an enthusiastic account of what they had done and what they believed had been achieved. The variety of their experiences indicated the flexibility of their framework. It was clear that the IDEAS Group was very committed to the concepts and questions. They perceived this framework was refocusing their teaching and this was positively influencing the way the students were engaging in their learning.

From the perspective of the IDEAS Group, a considerable amount had been achieved between November 1998 and June 1999. The vision, concepts and questions had been developed and trialed with great success. The group perceived that their achievement had come about as a result of their intensive deliberations, assisted by guidance from Bill. They had sought input from the broader staff at key junctures and were now ready to involve them more directly. In mid-July, the results of the initial concepts and questions trial were comprehensively reported to the whole staff. The group believed it was time to spread their learnings through mentoring, likening this approach to 'a ripple effect', with the ripples spreading away from the core group as they now looked outwards to begin sharing.

At an IDEAS Project workshop held in Brisbane in early July, Michelle and Emma presented an update on progress at Willowbank. They reported that the IDEAS Group had developed and trialed a shared definition of pedagogy (the concepts and questions) which reflected the distinct Willowbank vision. Asked about broader staff involvement, particularly of those teachers comfortable the way they were, they gave a two-pronged reply. Firstly, they stated, you cannot force teachers to be involved and anyone not enticed by the benefits of the project was simply asked to agree with the overall initiative. Secondly, the enthusiasm of the IDEAS Group, and their openness, was contagious and had a positive influence on the other teachers. Looking back at the end of 1999, Michelle reflected:

> I think it's had significant impact across the rest of the school because people around the school know that something good is happening, even if they weren't involved in it…and because…the fact that we've been able to distribute who's presented at staff meetings and lots of different people have talked to the staff…that's given a sense of authenticity (Michelle).

This is an important perspective to bear in mind when we return to look at this story unfolding from the standpoint of those outside the inner circle.

Looking in from Outside: Another Perspective

Between November 1998, when the IDEAS Group was formed, and July 1999, when they presented the results of the first trial of the concepts and questions, the rest of the staff carried on with business as normal. Viewed from a broader staff perspective, there was not a clear understanding of the work of the IDEAS Group. The teachers had experienced some consultation and information giving. Close colleagues of the group heard more about their progress and observed their enthusiasm, while others were less affected. Some teachers were interested in the IDEAS work and wanted to know more about it, some were neutral and some negatively disposed. Other variables also came into play. Particularly in the first half of 1999, some teachers felt excluded from being part of this inner group and that there were barriers between it and the rest of the school. There were others who were interested in what was going on but did not see it as any anything really different from what they were already doing. They believed that practices like allowing the students more choice and freedom, and making learning more purposeful were good, but they were less convinced of the benefits of using the concepts and questions for planning, especially as they were already so busy. Other teachers believed they were already doing a good job. Their primary role was teaching the students in the classrooms and they resented 'innovations' perceived as using up energy which would be better spent in consolidating what was already in place. Relatedly, some resentment arose from the fact that when IDEAS meetings where held during school time, the classes missed by the group members had to be covered by other teachers.

Another difficulty faced by teachers was that although they were being kept informed by the IDEAS Group, it was not easy to build up a coherent picture of what they were being told. From the outside, information appeared disjointed as

they had no framework of shared understanding to use to interpret what they were hearing and no real purpose for knowing. Still, there were teachers who were interested and wanted to know more – especially after the IDEAS Group's enthusiastic report back on their trial in July. After that meeting, the staff were invited to participate in IDEAS by entering into what the school described as mentor/mentee relationships. There was a good response from all but two Departments and only five teachers indicated that they were not interested in being involved at any level (Michelle).

First to be mentored were six teachers who had some knowledge of what the group was doing, were generally sympathetic to their work and motivated to be involved. The arrangement was informal, but was overtaken by all the other events of a busy semester. The same informal mentoring was continued with a similar pool of teachers in Term 1 the following year. While some discussion did occur, not a great deal of progress was made.

Bill Thompson visited the school in December 1999 to assist the IDEAS Group to set some directions for 2000. The tasks identified included clarification of the vision, revision of the concepts and the development of a plan to implement these across the school. It was recognised that links to the school annual operational plan needed to be explored, and ways found of measuring the impact of IDEAS on school outcomes. Links to systemic initiatives also required consideration, particularly in relation to the New Basics, as Willowbank was a trial school for this curriculum project.

Bill came back and spoke to the whole staff at the beginning of Term 1, 2000. The links with the New Basics were made more explicit, and a significant number of teachers volunteered to become part of a New Basics Management Team. Initially, this broader-based involvement appeared to address the emerging problem of the diminishing size of the IDEAS Group. It was a potential which failed to reach fruition, however, because the 2000 focus of the New Basics was pedagogical reform, which was precisely what the IDEAS Group was already engaged in. As Michelle pointed out, "having another group working on this would have achieved nothing".

The IDEAS Group Takes Stock

In April 2000, the IDEAS Group met to take stock of what had been achieved to date and to discuss what needed to be done to continue to spread their learning. This was an important issue because it was the aim of the group that, in time, a majority of the teachers on staff would use the concepts and questions to guide their practice. They would become part of the culture of Willowbank guiding, "what we do at this school" (Emma).

By April, the IDEAS Group had seven members, and one more was about to take extended leave. There were two competing views in the group about whether the diminishing numbers were a problem. The first was that the group should be more representative of the school community and have communication links back into the departmental staffrooms:

> We have such a narrow representation from Departments in this group that some people perceive that what we are saying isn't relevant to them – like when we present something about an English class that we've taken, Phys. Ed. people might be sitting there saying, I don't know how this relates to me (Mandy).

The potential for new members to contribute new ideas was also noted, but neither of these concerns was accepted as legitimate. It was Michelle's view, supported by Emma, which dominated. In this view the problems of representation and communication was best addressed through mentoring and so the task of the group was to engage the rest of the staff with the concepts and questions, sharing the values and beliefs embedded in this pedagogical framework. From this perspective, there was nothing to be gained by bringing new people into the IDEAS Group, whose role was no longer to forge new meanings but to drive change. Their job was now to use what they have learned to engage the rest of the staff, trialing the concepts and questions, getting feedback and having further trials, broadening the base of people and broadening the range of experiences. When the concepts and questions had been trialed and adjusted:

> Then we'll say, as a whole school community, this is what we will subscribe and commit to…at the end of the day we need to say yes, we think these concepts and questions work. Therefore…an expectation that everyone in this school community works under is that's what guides their practice (Emma).

The group decided to continue with the mentoring trial, but to make the process more formal by allocating some staff meeting time and sticking with a plan to report back to the full staff at the end of May. This report back session was interesting. Of the twelve teachers who took turns to share their experiences, five were members of the IDEAS Group and seven were teachers they had mentored. The purpose of the extended trial was to see if the findings of the initial trial held true when the concepts and questions were used by teachers in the broader school community. This reporting back represented the second trial of the IDEAS Group members and the first trial of the people in the ripple closest to the core group. It was a significant first step in moving towards a commitment by the whole school community to use the concepts and questions to guide practice.

The experiences reported ranged from those who had internalised the concepts and questions and used them in a wide range of contexts, to those who did something quickly, in time for the meeting (Appendix 10). There is a degree of tentativeness evident, some reluctance to try. Each person found some benefit from using the concepts and questions, but their level of engagement and the impact on their practice varied considerably. Some were using the concepts and questions as a higher order thinking framework, others as common ground for discussion, or a structure for trying something new or as a checklist. The flexibility of the framework created by the IDEAS Group was clearly illustrated, though, as teachers variously described how they had used it to plan, assess, evaluate, guide and change practice, change teacher/student interaction, and generate deep discussion (in very different contexts). The 'rippling' had begun and the challenge was to keep the effect spreading across the staff.

4.4.4 Spreading the Word

Term 3 was used to consolidate the achievements of the earlier trials. The IDEAS Group did not seek additional teachers to mentor, but continued to work with the concepts and questions and to provide ongoing support for their mentees. They, in turn, continued to work with the concepts and questions at whatever level they chose.

> Some of them are taking it on whole heartedly, some of them are working at it with different aspects of what they're doing, so some of

> them are applying it to evaluation, some are applying it to aspects of their teaching (Geoff).

The next expansion phase came in September when the IDEAS Group (now without Michelle who was on extended leave) decided to embark on a schoolwide trial. Their approach was to ask the whole staff, including the administration, to try out the concepts and questions during Term 4:

> We want to try and see if it works across all subjects, at all levels – from the principal down, so that we can review it and see if it needs adjustment to make it right…We want to trial it across curriculums, have all teachers do it - so that everybody has a go at some aspect of it and evaluates its effectiveness (Geoff).

Further incentive was provided by links they made to the New Basics Project. In 2000, there was an overlap between IDEAS and New Basics trial – both projects were concerned with developing a shared pedagogy. The second year of the trial, however, involved working with other aspects of the New Basics. By broadly linking this with the need for a shared pedagogy, the IDEAS Group were providing a largely unspecified but implicitly practical incentive to the staff to take part in the schoolwide trial of the concepts and questions.

At a staff meeting in late September, the teachers were asked to take part in the schoolwide trial. They were invited to openly express their concerns and participate in addressing these prior to the trial. Lack of time was raised as a concern and this was countered with a commitment to dedicate time in staff meetings during Term 4. Some queried whether using the concepts and questions would actually make a difference. The response was that an answer could really only be given after everyone had trialed the framework and given their honest feedback to allow the concepts and questions to be reviewed. After the trial, the IDEAS Group planned to ask for written feedback from all the teachers, so that the concepts and questions could be further refined.

> If it works, it should work across the whole staff…If it is as successful as we believe it will be, we'll look to modifying it at the end of the year and then endorsing it so it becomes part of how our whole school operates (Emma).

Teachers were asked to come along to the first staff meeting in Term 4 with an idea of how they each wanted to trial the concepts and questions. They could

choose an evaluation, planning a unit or a lesson, student assessment, whatever they wished. It could be big or small – related to any aspect of teachers' work. This schoolwide trialing process was an extension of the mentor/mentee system with one IDEAS Group mentor working with a number of mentees at designated times during staff meetings. An assumption behind the extended trial was that once teachers started working with the concepts and questions they would see the value of them, though this was qualified with an awareness that the trial was moving into different subject areas and that some teachers were resistant to change. Reporting back was to take place at an extended staff meeting in late November. This gave the staff most of Term 4 to carry out their trial, under the guidance of their mentor and with the support of other members of their group.

The schoolwide trialing process was designed to increase the teachers' feelings of ownership of the pedagogy and to agreeing to it on a schoolwide basis. The IDEAS Group recognised that there were teachers who were reluctant to respond or to take risks. The process deliberately allowed teachers to choose their groups, gave them the freedom to select what they wanted to trial, and supported their risk taking. The process was also a deliberate attempt to open up the whole project to the staff once more, as had been originally intended. It was time for the whole staff to come back in and have their say – and to be part of the review and refinement of the concepts and questions so they can "endorse and embrace them as something which works for the whole staff" (Emma). There were risks in that too, as people were really being asked to express their honest views, to "call it as they see it" (Geoff).

Again, the link with New Basics provided a focus for action. While the IDEAS Group members were strongly committed to the intrinsic value of the concepts and questions, there was some realisation that their depth of understanding was impossible to convey to teachers who had not been involved in their creation. The New Basics provided an explicit purpose for schoolwide involvement with IDEAS:

> IDEAS is getting the staff aligned. It is getting us in focus. It is getting us committed and talking…before you can work with (the New Basics)… you have to be going in the right direction. You have to be cohesive, you have to be committed, you have to speak the same language…this is setting the foundation and it is setting up a learning community (Emma).

The Schoolwide Trial: Reporting Back

For the IDEAS Group, the schoolwide trial was an important step in the concepts and questions becoming embedded in the Willowbank culture as the shared pedagogical framework. Sharing stories about the successful use of this framework had been a key strategy in spreading the word – reinforced through the series of expanding trials. As the trials progressed, more and more teachers had shared their experiences with the staff – the pool of stories about experiences was growing as the ripples spread. The IDEAS Group were optimistic about the staff taking the concepts on board, truly believing what they had produced was of such intrinsic value that it only had to be tried for its potential to be appreciated.

The view from inside the IDEAS Group, however, was not necessarily reflected in the broader staff perspective. At the end of November, twenty-two teachers reported the results of their concepts and questions trial to the staff (see Appendix 11). Mostly, these were teachers who had not presented when earlier trials were being reported back. Fourteen teachers made individual reports, along with two groups of three and a group of two. Again, the flexibility of the framework was demonstrated as teachers had used the concepts and questions in widely different contexts and for a range of purposes including planning, assessment, evaluation, and reflection.

The experiences reported ranged from those who had worked with the concepts and questions to develop something new to those had found no benefit in the experience. Two presentations related to the planning and pre-planned evaluation of two integrated units, demonstrating a clear intent to use the concepts and questions in a way that influenced practice. A third presentation related to a project where the teacher had used the questions to assess the students' achievements, having generated twenty-five questions out of the original eight. In eight of the presentations, the concepts and questions were used as a way of thinking about practice. This included reflecting on an existing unit of work to improve it, interpret it, view it in a different way or evaluate it. The concepts and questions were used to give some structure to both teacher and student reflection. Some teachers indicated that their practice had been influenced by their awareness of the framework, for example, they had made a deliberate attempt to increase the

relevancy of students' work, relating it more to their real world or they were encouraging more cooperation through group work. In two of the presentations, the teachers could see nothing new in the concepts and questions claiming it was what they were already doing. Another teacher used the questions with his students to evaluate a unit already completed, but could see little value in their responses, given the complexity of the questions. Two teachers indicated they planned to use the concepts and questions with their students but had not yet done so. Finally, one teacher reported seeing no benefit in the framework.

The Shared Pedagogical Framework: A Continuum of Acceptance

By the end of November 2000, it was clear that although the ripples were spreading, responses to the trials were far from uniform. Members of the IDEAS Group saw the concepts and questions being valued and used, to different degrees, by the majority of the staff with only a small group being cynical or resisting their use. There was a general perception of teachers being along a continuum of acceptance with the highly committed IDEAS Group at one end, a small group of resisters at the other end and the majority of the staff spread across the middle. Within this middle group attitudes ranged from increasing commitment to being reasonably disposed towards the concepts and questions, though yet to use them meaningfully. One teacher noted that the people who had been specifically mentored tended to be 'at the top of the middle group' which is where she aspired to be. Another teacher with no such aspirations acknowledged that probably three-quarters of the staff had at least trialed the concepts and questions and maybe about half were using them regularly. A more resistant voice, however, suggested that little progress had been made in a year:

> My honest opinion is that a lot of people who aren't really involved in this, don't really use it and aren't really au fait with the whole workings of it…You've got a got a core group of people who are involved, absolutely committed. From my experience, I would say that more than half of the staff just would have no time for it whatsoever (Blake).

Diversity in the 'Middle Group'

During individual interviews in late November, a number of factors were suggested to explain the spread within the 'middle group'. Some teachers felt that the concepts and questions reflected what they already did, and their benefit lay in

making this explicit and therefore heightening awareness. Another group of experienced teachers, with a well-developed repertoire of teaching strategies, could see value in the concepts and questions but believed other strategies could be just as effective.

Some of the young teachers who were positively disposed towards using the concepts and questions felt constrained by having to keeping up with subject content and remain in step with their colleagues. They recognised the framework was in keeping with what they had learned at university and that it could direct the focus of their teaching allowing them to be more adventurous with the strategies they used. However, sometimes their innovative enthusiasm was dampened by the scepticism of their more experienced colleagues, or there was pressure to keep up with content, exacerbated if:

> …(the) teacher next door is working directly from the textbook doing all the questions, covering the questions, going over them again, rote learning them, teaching the test and they are getting through it (quickly) (Tim).

Feelings of vulnerability were not confined to the inexperienced teachers. Some others referred to a 'tall poppy' element in the school culture and felt awkward talking about their practice, especially where they had been successful, in case they were criticised. Aware that it is not easy for teachers to discuss their practice in front of their peers, the IDEAS Group had allowed wide choice and provided support – deliberately seeking to take away fear of failure. However, subtle processes were at work here, leaving some teachers feeling that they were exposing themselves when they used the concepts and questions to publicly examine their practice. One teacher reflected on how she overcame this vulnerability and how this had influenced her experiences:

> When I've gone to implement it…I've picked things that were a little bit different, outside my normal curriculum. …I haven't sat down with an ordinary unit that I've taught for the last 8 years and put them in…which I would have to – to be really doing it properly. You can't say it is working if you are just choosing safe areas (Rebecca).

Previously, a number of teachers had been reluctant to become involved with IDEAS, perceiving it as another top-down innovation of dubious value and likely to be superseded. Over time, this view had dissipated somewhat as a result of the

trials and possibly assisted by Michelle's extended absence. Teacher members of the IDEAS Group had instigated the schoolwide trial with the approval of the staff, and had indicated their intention of adjusting the concepts and questions in response to staff feedback. However, while IDEAS did gain some credibility during 2000 as a largely teacher managed project –a small number of staff continued to associate it with Michelle.

> Michelle is great with what she does, she is a real motivator…but (often) there is no follow through. There are a few people on staff – it has been hard to convince them that we ware going to stick it out rather than just change to the next thing (Geoff).

Some teachers were resentful of the amount of staff meeting time taken up with IDEAS and frustrated by the extended timeline. One teacher, a member of the resistant group, commented:

> People's attitude towards that whole thing was very negative. I remember our last staff meeting, we said ok, it's the IDEAS Project and it was just like - oooh (big sigh). Right-ho, fair enough, let's just get it over and done with (Blake).

The Resisters

Everyone was aware of the existence of a small but influential group of teachers who were resisting any involvement with IDEAS. Teachers offered a number of suggestions to explain why this all male group was unlikely to conform: they were content with the job they were doing; they viewed being asked to conform as implied criticism of their practices; they had established their identities as successful teachers with a certain style and could see no reason to change; and peer pressure made it unlikely that they would risk breaking ranks to express a positive view. Other teachers expressed frustration with this group who appeared to be against the IDEAS almost for the sake of it. One teacher observed:

> I think its easier just to say, to blanket say "No, I'm not going to do it", than to actually sit down and think about well why am I not going to do it, and which parts am I objecting to? (Lynne).

The resisting group also contested the success of the trials by pointing out that the IDEAS Group keep telling the staff what a wonderful job they are doing, when most people have done nothing different in their classrooms at all. A more positively oriented teacher believed there was some truth in this, as the IDEAS

Group were so involved in the process they no longer had a clear picture of what was working in the school.

> Sometimes when you are inside the circle, it is very difficult to step back outside – and see what is working in the school. They stand up at the staff meetings and say yes, the school is doing wonderful things and a third of the school are going 'we haven't done anything'. You keep telling us we are doing wonderful things and the school is doing this really well. I think they believe more than what has been happening. Definitely (Trevor).

What this comments fails to address perhaps, is the views of individual members within IDEAS Group. At least one member of the group had the ability to live in both the world of the IDEAS Group and the world of the broader staff. Other members were also aware of some of the broader staff dynamics – though heard little negative comment at first hand. The group's subjectivity was counterbalanced by their genuine intention to get honest feedback from the staff and reviewing the concepts and questions in light of this. One teacher did observe that if the concepts and questions were going to be challenged, that needed to happen while Michelle was away. It may be coincidental, however, that Michelle returned at the end of November and the planned evaluation questionnaire was not distributed to teachers as promised. Some further refinement of the vision, concepts and questions was carried out by the IDEAS Group (Appendix 12).

4.4.5 Final observations

In individual interviews, a number of teachers commented that aspects of the school's infrastructure could constrain the implementation of the vision, concepts and questions. Chief among these was that despite being 'A School for the 21st Century', Willowbank continued to work with structures that had been around for a long time – such as a very traditional timetable, grade level classes, traditional allocation of resources and limited access to computer technology, especially for the junior classes. There was concern that Willowbank remained traditionally run and that developments in pedagogy had not flowed into other areas of school operation. It is interesting that when the IDEAS Diagnostic Inventory was readministered to staff in Semester 1, 2001, the new teacher data indicated a range a concerns relating to infrastructural issues – the physical design, lack of

flexibility, use of technology and inadequate resourcing for effective teaching. There was also concern that inadequate time is allowed for shared staff reflection.

However, very positively, the data from this second diagnostic inventory survey showed that teachers believed that Willowbank SHS was guided by an inspirational vision and that they had agreement on constituted excellent teaching in the school. They believed that the pedagogical practices of the staff were consistent with the school vision, and that successful practices were identified and celebrated. These views were shared by all but a very small group of four or five. Significantly, too, teachers perceived a very positive relationship between the school and its community, and felt that their efforts were valued. Staff morale had improved and only one person disagreed that the staff were proud of the achievements of the school.

4.5 Conclusion

Chapter 4 has told the story of the three schools in relation to their experiences with IDEAS. These accounts, representing the first stage of data analysis, explore a wide range of contextual factors and provide a basis for the more specific consideration of knowledge creation which follows in Chapter 5. Moving into the second stage of data analysis, Chapter 5 begins with consideration of the contextualised meaning of the new knowledge created in each setting. An initial understanding of the nature of the knowledge created in each school is presented, then summarised diagrammatically – taking into account the purpose for engagement with IDEAS, significant contextual factors and dominant themes which emerged during the *ideas* process. This is followed by a detailed exploration and analysis of knowledge creation in each of the schools and my own emerging interpretation of the knowledge creation processes at work in each case.

CHAPTER 5: Knowledge Creation: Emerging Understandings

5.1 Knowledge Creation and the Life World of the School

The focus of this chapter is knowledge creation and how it may be understood in each of the case study schools. The accounts in the previous chapter provide a glimpse into the life world of each of the schools, seeking to illuminate the analysis that follows. What may be learned from consideration of the three cases collectively will be the focus of Chapter 6.

Drawing on all five of the schools studied in depth for this inquiry and the more generalised experiences of participating schools, it is clear that each school experiences IDEAS differently. The findings of this study suggest that the life world of the school has a profound impact on the way knowledge creation is experienced, enacted and may be understood. The findings also demonstrate that individuals within the schools have different perspectives on what is occurring. Each of the schools, however, regardless of its particularities, was able to engage with the *ideas* processes and to create contextualised professional knowledge. Why and how that occurred and how it translated into action varied considerably, depending on the conditions within the school and how those contextual factors influenced the way that IDEAS was interpreted and enacted.

5.2 New Knowledge and its Contextualised Meaning

New knowledge has a particular meaning depending on its purpose, the context, the learning and the action occurring as a result of collaborative engagement. Broadly speaking, the three case study schools engaged in the same process. The nature of the knowledge created, however, varied as a result of contextual factors.

5.2.1 Holy Cross Lutheran Primary School

It is interesting to consider the nature of the knowledge created at Holy Cross because its significance did not become apparent for some time. The school engaged in a whole-school renewal process as a means of addressing decline. The assumption was that through their collaborative activity, the teachers would

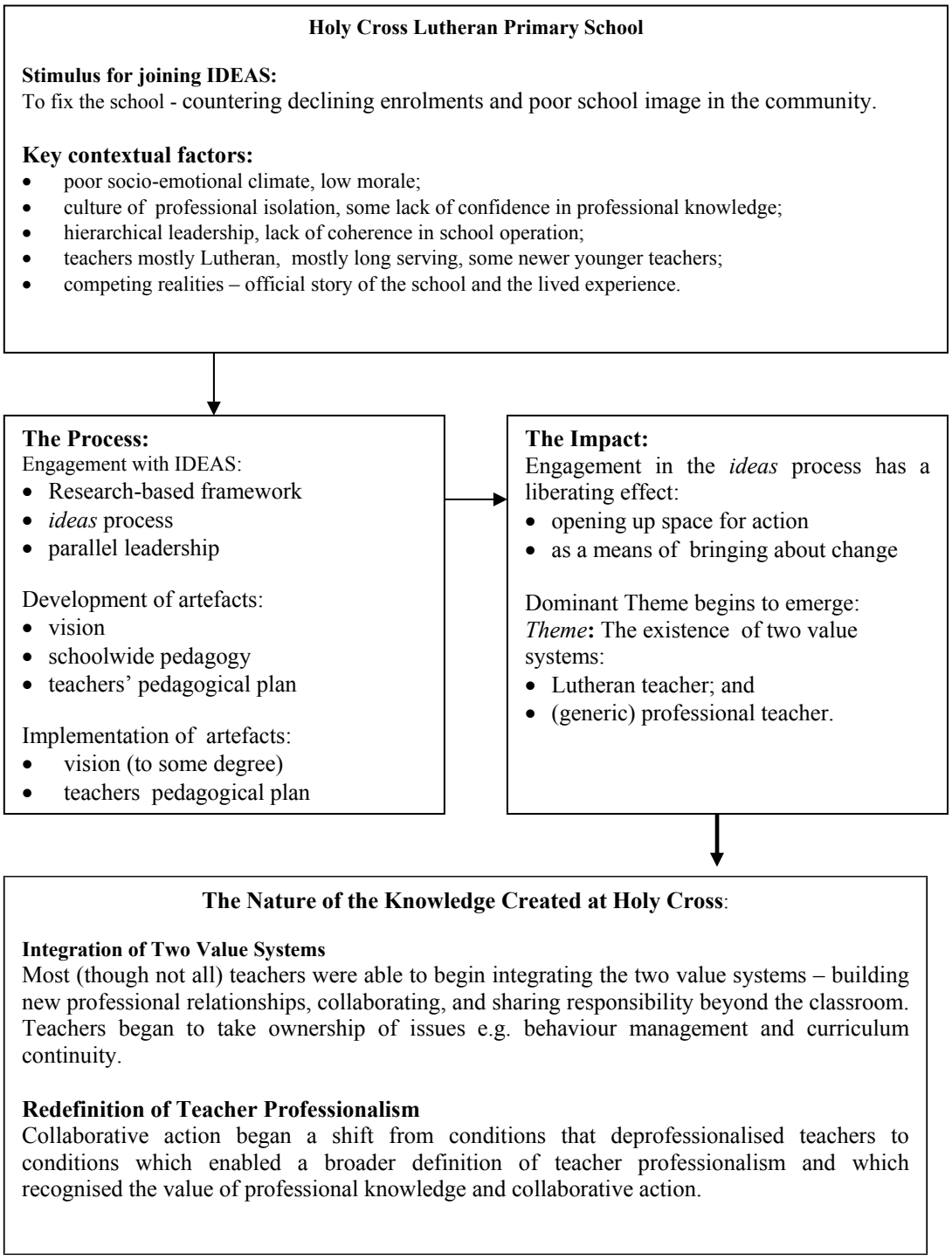
develop an agreed vision and schoolwide pedagogy which would be implemented in their classrooms. The positive effects of this process would be apparent to the community, improving the image of the school and increasing the enrolments. This assumption failed to take into account that the conditions in the school made such an enactment of IDEAS impossible.

As *Into the Future* progressed at Holy Cross, tensions began to emerge between the school as a Lutheran institution and the school as an educational institution in a broader sense. The coexistence of the two value systems – Lutheran teacher and more broadly defined professional teacher – does not appear to have been acknowledged. Given the culture of isolation and absence of professional discussions, tensions or ambiguities between the two value systems were not explored. Both perspectives are recognised in the vision statement, though no effort was made to reconcile them.

The knowledge created at Holy Cross was significant as it ultimately provided an opportunity for the integration of the two value systems. A broader definition of teacher professionalism was gaining legitimacy in the school. The secularisation of teacher knowledge was increasing the professional credibility of the newer non-Lutheran teachers who felt comfortable with collaborative activity. While little in the way of tangible 'products' were produced as a result of the time the teachers spent working together, new connections and ways of working were being built – a change likely to be reinforced by continuing staff turnover. While the new knowledge appeared to have little impact on teaching, it had a significant impact on professional interaction outside the classroom and on the way teachers viewed their professional role. Teachers began to take some responsibility for what was happening beyond their classrooms and to take ownership of issues such as behaviour management and curriculum continuity. They organised time to work together, and though frustrated at times with what they were able to achieve, were clear about needing to continue to build on their collaborative achievements. Table 7 encapsulates the key elements of the *Into the Future* process at Holy Cross, and the nature of the knowledge that was developed. It considers the school's purpose for engaging with IDEAS and highlights contextual factors identified in Chapter 4. As the school engaged with the *ideas* process, developing

artefacts for implementation, the significance of the coexistence of the two value systems began to emerge. This had a significant impact on the nature of the knowledge created at Holy Cross which entailed the integration of the two value systems and a broader definition of teacher professionalism.

Table 7: The Nature of the New Knowledge Created at Holy Cross Primary School



5.2.2 Rainbow Terrace State School

At Rainbow Terrace, IDEAS was viewed by the staff as a whole-school renewal process and by the principal as a component of the Total Systems Model, his alternative system of school renewal. Though fully aware that these two paradigms were operating concurrently, the principal chose not to raise this with the IDEAS Team. The teachers were unaware of the influence of the Total Systems Model and did not recognise the dynamics of what was occurring – experiencing, but not understanding, the tension and ambiguity that arose as a result.

With the development of the schoolwide pedagogy, the principal had achieved his aim of enhancing the Total Systems Model by adding an explicit statement of Rainbow Terrace pedagogy. As the teachers continued to work with IDEAS, however, the knowledge they created began to take them beyond this very specific objective. The Total Systems Model defined clear parameters for teachers, underpinned by Choice Theory and an understanding of the principal's role as a transformational leader. The new knowledge created as a result of IDEAS was opening up the possibility of questioning those boundaries and the belief system that supported them.

New space and purpose was opening up for staff interaction and new connections were being made between teachers. Members of the IDEAS Team were developing their capacity for teacher leadership, becoming more skilled and more confident about engaging their colleagues in *ideas*. Professional conversations became a regular feature of staff interaction, and there was increasing interest in forming dialogue groups. Elements of the dynamics of school operation which had previously been hidden were beginning to come into view. The knowledge generated at Rainbow Terrace was both building the capacity to and opening up the possibility of challenging some of the basic assumptions embedded in the Total Systems Model. It was broadening what could be accepted as 'legitimate' knowledge, and in effect was beginning to bring the two paradigms together. Table 8 encapsulates the key elements of IDEAS at Rainbow Terrace, and the nature of the knowledge that was developed. It notes the school's dual purpose for

engaging with IDEAS and summarises the contextual factors identified in Chapter 4. As the school engaged with the *ideas* process developing artefacts for implementation, the significance of the coexistence of two competing paradigms began to emerge. This had a significant impact on the nature of the knowledge created at Rainbow Terrace.

Table 8: The Nature of the New Knowledge Created at Rainbow Terrace State School

Rainbow Terrace State (Primary) School

Dual stimulus for joining IDEAS:
Principal: Complementing existing renewal efforts – enhancing other change
Staff: IDEAS School renewal

Key Contextual Factors:

- positive and supportive socio-emotional climate, cohesive staff, high morale, efficacy, good communicative environment;
- supportive leadership, highly regarded principal - transformational leader, culture builder and systems thinker;
- highly coherent framework for school operation;
- challenging students, behaviour management based on Choice Theory;
- shared responsibility for students and focus on improving student outcomes.

Process:
Engagement with IDEAS:

- Research-based framework
- *ideas* process
- parallel leadership

Development of artefacts:

- schoolwide pedagogy
- vision (late in process)

Implementation of artefacts:

- schoolwide pedagogy
- vision

Competing artefact:

- Total Systems Model

Impact:
Engagement in the *ideas* process has a liberating effect opening up space:

- for teacher leadership and teacher initiated professional interaction;
- for the questioning of current practice.

Dominant theme begins to emerge:
Theme: Tensions between IDEAS and the Total Systems Model - bringing these two paradigms together.

The Nature of the Knowledge Created at Rainbow Terrace

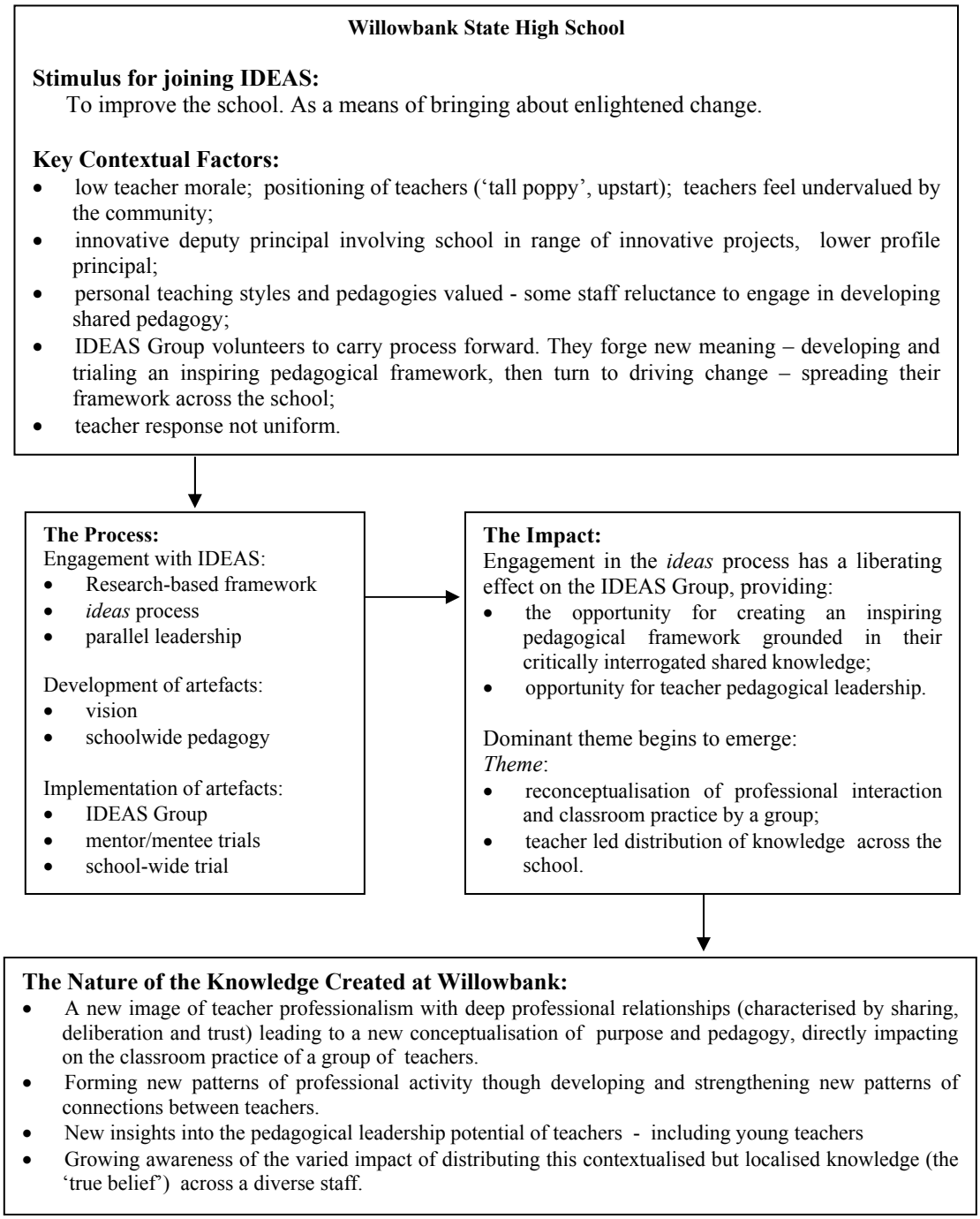
- Increased understanding of the value of teacher knowledge and insight into the potentialities of teacher pedagogical leadership.
- New patterns of professional relationships and collaborative activity. Enrichment of communicative environment increasing interrelatedness between teachers. Valuing of dialogic process.
- New awareness of the dominant paradigm and alternative ways of thinking.

5.2.3 Willowbank State High School

As in the other two cases, the nature of the knowledge created at Willowbank is strongly influenced by contextual factors. The IDEAS Group generated knowledge though sharing and deliberation in the process of developing a vision and schoolwide pedagogy. Individually and collectively, their learning was deepened through successive trials of this pedagogical framework. As a result of their intense collaboration, the IDEAS Group reconceptualised their professional relationships and their classroom practice. They were inspired by what they had created and felt enlightened as a result. The knowledge they had created was contextualised, affirming and very powerful in practice. Yet, it was the achievement of a group of teachers, part of a much larger staff.

The IDEAS Group consisted of the teachers who had been prepared to carry the process forward, in the absence of broad-based staff support. The whole staff had been involved on occasions but not to any significant degree. The knowledge the IDEAS Group had created transformed their professional practice – both in and out of the classroom. The next challenge was to have it accepted as legitimate organisational knowledge and embedded in practice across the school. Unless the knowledge was taken up by others, IDEAS would become another isolated and short term project, quickly losing its relevance. It was necessary to convince other teachers that the vision, concepts and questions would improve their pedagogy – a difficult task in a culture where teachers had not developed agreement on what constituted excellence in teaching – and where a number of teachers could see no reason to change. Table 9 explores the key elements of IDEAS as it was enacted at Willowbank, and the nature of the knowledge that was developed. It considers the school's purpose for engaging with IDEAS and the key contextual factors. Working with the process, the IDEAS Group developed significant knowledge which transformed their professional practice. To become organisational knowledge, this had to be distributed across the staff and implemented across the school. As they worked to share the knowledge they had created, members of the IDEAS Group developed their pedagogical leadership abilities, forming new relationships with their peers.

Table 9: The Nature of the New Knowledge Created at Willowbank State High School



In the sections which follow, the knowledge creation processes and products in each of the case study schools are explored in depth. These accounts clearly illustrate that IDEAS may proceed in many different ways and to different effect depending on school (and individual) purpose and on the configuration of the many factors which produce the context of the school. While growing out of the stories told in Chapter 4, these accounts focus specifically on knowledge creation.

5.3 Knowledge Creation and Learning at Holy Cross

Holy Cross provides significant insights into knowledge creation in a school characterised by incoherent operation, failing leadership and a poor socio-emotional climate. At Holy Cross, a considerable gulf existed between official reality and lived reality, and where engagement with *Into the Future* (IDEAS) gave teachers an opportunity for action. Working within the *ideas* process, teachers created contextualised professional knowledge. The results of their deliberations were recorded in the Vision Statement (Exhibit 1: Ch.4), the Statement of Excellence in Teaching and Learning (schoolwide pedagogy) (Exhibit 2: Ch.4) and the Teachers' Pedagogical Plan (Exhibit 3: Ch.4). These documents are artefacts produced as a result of the cognitive activity of the group, which, to differing degrees, continued to form part of their ongoing thinking and learning. They illuminate the dynamics of the knowledge creation process, and provide statements of intent against which action can be viewed.

During the *Into the Future* project, the learning of the group, the documents they created and the effectiveness of their action continued to be influenced by conditions within the school. The case provides insight into what may be achieved when conditions constrain rather than support knowledge creation, but where the knowledge created ultimately represents a significant shift in direction. It illustrates that while the school renewal process may appear to be achieving little, small changes have the potential for greater impact, over time. It also suggests that where the dominant knowledge is challenged, and different knowledge is foregrounded, individual teachers may be displaced, unable or unwilling to re-image their work.

The *Into the Future* project brought new knowledge into the school – it provided a model of how a successful school operates (the Research-based Framework) and a process whereby the school could, in its own unique way, begin to work towards a collectively agreed image of success. It also brought a new narrative which reconceptualised the work of the teacher – bringing teachers out of the classroom to work together to achieve their collective goals, using an agreed pedagogy. The process required teachers to work collaboratively, and shifted the emphasis from education within the Lutheran discourse, to education within a

broader professional discourse. This reconceptualisation of the teacher's role, bringing with it new expectations of teacher professionalism and a valuing of different knowledge, contributed to the decision of several long serving teachers to leave the school in the eighteen months after the project commenced.

Into the Future provided an alternative structure for teachers' work. Previously positioned as 'classroom teacher' in a strictly hierarchical setting, teachers were now being positioned as responsible professionals whose collaborative effort could improve classroom practice, both changing the image of the school and improving student outcomes.

5.3.1 The Changing Image of the School

The official story of Holy Cross is of a school grounded in Christian values, characterised by high quality teaching and high standards of student achievement, and proud of its strong Lutheran ethos. By 1999, declining enrolments and a poor image in the community were undermining this story, prompting the school to engage with *Into the Future*. What then emerged was a picture of a life world characterised by teacher isolation, poor interpersonal relationships, feelings of guilt and shame, and lack of professional confidence. Lack of coherence in school operation had structures in the school operating against each other. The educational process was fragmented and student behaviour presented a serious problem. Teachers were frustrated by the principal's failure to complete tasks or address pressing problems. Until the survey data brought a range of issues to light, the life world of the school had not been open to public discussion – and the lived reality not officially valid as knowledge.

5.3.2 The Knowledge Situation: New Knowledge Needed

One of the key features of Holy Cross was the poor starting point teachers had for the creation of shared knowledge. Prior to *Into the Future*, they came together at irregularly held staff meetings dealing mainly with organisational issues and problems (Alison, Lindy, Elsie).

> We hardly ever really ever got together to discuss things as a staff that were really classroom orientated or curriculum based - other things were being discussed…we didn't get much of a chance to share (Elsie).

With no expectation of or support for shared planning, shared reflection on practice or visits to other classrooms, teachers planned and worked in isolation (Alison, Lindy, Elsie). Those who did talk about their practice were viewed with suspicion, seen as flaunting their knowledge and undermining their less confident colleagues (Alison, Lindy). Teachers were further isolated from each other by the lack of curriculum continuity and fragmentation of the education process.

In the isolation of their classrooms, teachers were working from different knowledge bases. They had opportunities to attend professional development workshops outside the school, but were not expected to share their learnings with their colleagues (Alison). With no coherent professional development strategy in the school, some teachers felt vulnerable about gaps in their knowledge and insecure about exposing this through sharing (Alison).

> A lot of the talk that goes on…I'm lost. I have to be honest, I'm lost with the jargon. Heck, if only they would put it into everyday language (Moira).

Minimal feedback on performance and the poor socio-emotional climate of the school intensified the effect of this lack of shared meaning – feelings of professional vulnerability serving to further isolate some teachers. The strongly Lutheran teacher knowledge, which had been a significant part of the professional identity of these teachers, was no longer sufficient, or necessarily current. Different teachers were coming into the school, bringing fresh ideas and a broader perspective on education. Previously, new ideas had been resisted (Annie, Alison), now, the need for change could no longer be avoided.

5.3.3 *Into the Future*: New Space for Action

Commencing in mid-1999, *Into the Future* had a significant impact on teacher interaction. Emphasising their professionalism, it gave teachers responsibilities beyond the classroom and the opportunity to bring about positive change. The project opened up a space for collaborative action, giving teachers time for talking together, a framework and purpose for their discussions, in a stipulated 'no blame' environment. Teachers began to share, involving everyone:

> There was a lot of discussion and you really had to make sure that everyone had their say…everyone was made to be involved…It was like

> an induction into speaking and not sitting back and saying nothing (Elizabeth).
>
> People were prepared to speak up even though them putting their ideas in might have caused a few difficulties. I think people did give their ideas freely. People did pull together well (George).

Being able to work cooperatively on the diagnostic inventory data in a no blame environment was a positive experience. Feelings of guilt were put to one side and different ideas were discussed without recrimination (Lindy).

As the teachers worked together to make meaning of the diagnostic inventory data and begin to envision what the school could be like, they began sharing their beliefs, discussing their practices and learning more about their colleagues' personal pedagogies. This sharing of mental models, the cognitive aspect of their tacit knowledge, represented the first step in the knowledge creation spiral. These discussions also challenged any assumption that the teachers were working from a generally shared philosophy of education, informed by similar knowledge bases.

> Some of the words…and teaching strategies that I believed that people just know if you are a teacher – a number of people didn't know…They just didn't know what they meant…So, it was wrong of me to assume that teachers would have all that terminology and would be using those techniques in their rooms (Alison).

For the first time, differences between teachers were open to discussion, opening the way for greater sharing, and bringing some of the long term effects of teacher isolation out into the open.

5.3.4 The Documentary Artefacts

The documents produced as a result of teacher deliberation are important artefacts in their cognitive journey. They represent the intentions of the group and their best endeavours to bring about change both in the pedagogy of the school and, more obliquely, in the image of the school in the community. They are the results of tentative attempts to negotiate the creation of knowledge and reach agreement on how to move forward, with little support and in a fragile social and emotional climate.

Artefact 1: The Vision Statement

The first document produced was the Vision Statement (see Exhibit 1: Ch.4). This embodies the collective ideal of a school providing excellent educational opportunities within a caring Christian environment where all students are recognised as special. It is a retelling of the official story of the school, acceptable to both those with strong educational leanings and those with strong Lutheran leanings.

In the development of the Vision Statement the teachers had been able to put forward their opinions, and resolve their differences through explanation and discussion.

> There were a lot of discussions and backing up of why you had these opinions and giving explanations. I don't really know exactly how we solved it, it just seemed as if we could find something generally that we agreed on (Elizabeth).

Through their discussions the teachers generated shared meaning and reached broad agreement (Elizabeth) – though their individual aspirations may have favoured either the Lutheran or educational aspects of the vision (Alison, Elsie). The teachers had embarked on the knowledge creation spiral – sharing their knowledge, developing understandings and producing something new to guide their action. As a cognitive artefact, this statement contained the thinking of the teachers in conjunction with the School Council. It is a cognitive reference point which played a central role in the development of the other documents.

Artefact 2: Schoolwide Pedagogy

Moving on to the next stage, the teachers began to develop a schoolwide pedagogy, the 'Statement of Excellence in Teaching and Learning' (see Exhibit 2: Ch.4; full version Appendix 7) which was to be linked to the vision and grounded in their existing successful practice. As the principles of pedagogy in the vision were being teased out by the teachers, the link with the vision remained strong but the link with existing successful practice became increasingly tenuous. The schoolwide pedagogy appears to be an attempt to cover all bases in educational excellence. While it may represent a statement of the collective ideal, from both Lutheran and educational perspectives, given the existing conditions in the

school, it is not transposable into action. With no attempt made to reconcile the gulf between the schoolwide pedagogy and the reality of the school, the link between knowledge and action became tenuous. However, *Into the Future* had been initiated to address declining enrolments and to improve the image of the school in the community. The 'Statement of Excellence in Teaching and Learning' may be seen more as an exercise in image projection than an attempt to enhance student outcomes though changing practice. The teachers wanted to improve the school, but the schoolwide pedagogy was not to be the vehicle for their action.

Artefact 3: The Teachers' Pedagogical Plan

The next step was to develop a Pedagogical Plan to transpose the schoolwide pedagogy into practice. That was clearly problematic, so having created their pedagogical 'Statement of Excellence in Teaching and Learning' (the schoolwide pedagogy), the teachers put it to one side and took the opportunity to establish a very practical list of priorities – the things they wanted to address.

> The staff sat down and we figured out what we really felt was important to improve the school…Then we felt that we never got to talk to each other so we put down for a staff meeting and a curriculum meeting every week (Lindy).

The Teachers' Pedagogical Plan (see Exhibit 3: Ch.4) was both practical and circumspect. Picking up some aspects of the survey data and schoolwide pedagogy, it shifted the focus from the implementation of the schoolwide pedagogy to immediate problems that, by general consensus, teachers wanted to address (Elizabeth). Here was an opportunity to address student behaviour:

> To make it a general school atmosphere that they know what is acceptable and what is not…It would be really good to have more consistency amongst the staff in behaviour management (Elizabeth).

The lack of curriculum continuity and problems of teacher isolation were also targeted with plans to develop whole-school programs in English, Science, and the Lutheran Schools Christian Life Studies (Alison, Annie). The Pedagogical Plan provided the impetus for ongoing teacher collaboration. Thursday afternoons were set aside as a designated time for professional meetings, providing time for teachers to continue to share their knowledge.

While teachers were generally happy to be addressing behaviour management and curriculum continuity collectively, there was some unease that the schoolwide pedagogy was not being enacted, and that the focus had shifted to things that people were comfortable addressing.

> Suddenly we seem to be focusing a lot on those sorts of things. Certainly, we talked about the need for continuity and…I guess we did come up with the idea of a whole school English program. The Science was a need of course with the new syllabus, but again, in my mind, it has sort of been just taken over. Perhaps I misinterpreted what we had decided (Alison).

This tendency for the collaborative work to proceed in non-threatening out-of-classroom areas, represented a further move away from the schoolwide pedagogy.

> My concern is that, we put a whole lot of words down on paper because it is important that they appear there or people feel that it's important but we don't necessarily do what it says (Alison).

The knowledge creation process was proceeding but in a form significantly influenced by the prevailing conditions in the school. Content to be working together to develop whole-school programs, teachers did not discuss changing their classroom practice as a result of *Into the Future.*

> I haven't heard anybody say, 'this is what I've done in my classroom' to take on something that happened last year. That point hasn't really come through…that we need to sit and think what we can do in our classrooms to cater for this. In the classroom itself, I don't know how much has changed at this stage (Annie).
>
> Change in classrooms? I'm not sure there has been any (Elizabeth).

5.3.5 Tracking Progress over Time

By March 2000, some progress had been made in the social interaction of the group. Teachers were better able to cope with listening to different opinions and those who normally said little were being encouraged to contribute (Mary). While teachers were generally disposed to work together, social relationships remained fragile and individual personality issues did not totally disappear. Teachers were still held back by the lack of trust and insecurity, or by uncertainty about where they fitted in.

> It is the matter of…just working very gently and easing those people in and showing them basically that what is being expected of them is not impossible and it is not really that radical but it is essential (George).

Progress was also being made with behaviour management, as consistent enforcement of rules had made the school a better place to be (Elizabeth). Work on the whole-school programs was underway and teachers were talking more about their practice (Annie).

> We are spending time actually looking at whole-school planning, actually getting together and talking through what we are going to do at various year levels and I think we still have a fair way to go to get that planning in place. But at least we are starting to listen to what others are doing (Alison).

Not everyone was necessarily willing or able to contribute to the same degree, as some people were still unsure of their broader role in the school. Their knowledge was firmly classroom based, often within a single year level, and they were ill equipped to adopt a broader school perspective.

> We keep drawing in those people who don't feel part of the process…showing them where their year level and what they are teaching fits into the overall school plan…where they are contributing and what they will be doing (George).

The social climate could sustain discussions on safe ground such as the Christian Studies policy or technical aspects of the English program, but precluded more challenging critiques of current practice.

> People are more prepared to change now because we have been changing a fair bit lately, in that we have been rethinking things and having a fresh approach to whole lot of things. A lot of change is happening but we feel we can keep it under control (Lindy).

The learning of the group was adaptive and single-loop as they were trying to do properly what they believed they were supposed to be doing. Assumptions underlying classroom practice were not publicly questioned. Teachers were working together to bring the students under control and to establish some continuity across the curriculum. The areas they targeted were based on consensus, as the social and emotional conditions did not allow anything new or radical to be attempted, despite some progress in this area.

Early in 2000, a majority of teachers had been positive about what they would achieve together (Lindy, Elizabeth, Annie, Mary, Alison, George). By the end of the year, despite some lapses, student behaviour had improved overall (Elizabeth). The Christian Studies policy had been finalised. The Science program, written by Tom and a Lutheran schools Science adviser, had been handed to staff at the start of Term 3. Only used by one or two teachers in 2000, it had not been significantly questioned (Alison). Most staff had participated in Parent Effectiveness training (PET) during Term 2, with the hope of improving relationships between teachers (Elizabeth, Lindy, Moira, Annie). This was relevant and potentially useful knowledge that was not used. While the course content was generally viewed positively, no link was formally made back to relationships in the school (George). With no strategic leadership to follow up this aspect of the Pedagogical Plan, no shared meaning was developed, no value was added to what was 'learned' outside and no link made to practice.

Work continued on the whole-school English program, though, during the year, a new approach to its development evolved. Extra funding for literacy resources had led to the decision to structure the whole-school program around the particular resources purchased.

> We basically said we'll turn it around, it may be more economical to go and get the resource material for the literacy program that we are interested in, get their teachers' manual and stuff and draw back on them and write them into the English program. Rather than writing the English program and then buying this and finding that it doesn't fit, and you've got to do it again. So, we basically backed off there. That's why we haven't moved along (George).

By the end of the year, the English program was still a work in progress, to be finalised the following year. George believed that collegiality and morale was better. Teachers, with some reservations, suggested their interaction was continuing to improve. Overall, teachers' collaborative work had proceeded slowly though with little impact on classroom practice. Through collaboration, they had learned from each other and group attendance at literacy inservice workshops had also provided common ground for discussion.

> By doing…inservice together we at least all come then with a similar knowledge base. It not as if just one or two people have that knowledge

> and are talking about one thing and somebody else is talking about (it)…and meaning something completely different (Alison).

Aspects of the Pedagogical Plan not Addressed

By the end of the year, all but a couple of items in the Pedagogical Plan had been addressed to some degree. The individual termly meetings with George had not eventuated and 'Enrichment and Extension', mentioned twice in the Plan, had been bypassed. Early in the year, Alison had prepared a higher order thinking workshop for teachers. Through a confusion on George's part, time was not made available and no new date was set for the presentation. Unwilling to push herself forward, she was unable to share her knowledge in this area, despite the priority it had been given in the Pedagogical Plan. Alison believed that teachers were threatened by her expertise but the situation was also compounded by George's lack of leadership and the teachers' reluctance to move into areas which directly impacted on their classroom practice.

The group interview with teachers in late November provided more insight into why they were reluctant to add enrichment and extension to their normal practice. They were having great difficulty even achieving success in 'the basics' because of numerous, often unexpected, demands made on their teaching time. With planned lessons constantly interrupted by the demands of a wide range of extra-curricular activities teachers were struggling to keep up with their programs (Moira), using up any time allocated to enrichment and extension activities and making the vision an unachievable ideal (Elizabeth, Lindy, Mary). The situation worsened as the year progressed, with more and more things being added to a busy school calendar (Mary). Classes were falling behind and, although the interruptions were beyond their control, teachers felt guilty (Mary, Moira).

> It is a reflection on you too. You think what have I done wrong, why haven't I been able to cover all this work, I didn't think it was too much but you look at the end of the program and you're half way through and it is the end of the term...everybody feels the same…But it really isn't due to what you haven't done. It is due to all the extra things that have come up (Annie).

This is a good example of how structures in the school were working against the implementation of the knowledge created by teachers. Other example is the lack of structural support provided for teachers to visit each other's classrooms,

sharing and discussing practice. Teachers had been enthusiastic about the idea but George decided that it was too expensive and too disruptive to the timetable. He was unsure of the benefits and made only a hazy distinction between deprivatisation of practice and peer appraisal. George went on to develop an appraisal questionnaire using the schoolwide pedagogy. This was an interesting development as teachers were being asked to reflect on their practice using performance criteria from a schoolwide pedagogy that had not been implemented. It was based on the assumption that the links existed between the vision, schoolwide pedagogy and practice. There was no acknowledgement of the gulf between espoused theory and theory in action.

At the start of the year, teachers were keen to make the most of their Thursday afternoon professional meetings. Looking back in November, they reflected that they had not achieved as much as anticipated. Few meetings had been held in Term 2 because of the PET course and after that, other activities like sports organisation, parent interviews, and Book Week activities had intervened (Annie, Elizabeth, Lindy, Mary, Moira). Sometimes, other activities had interfered with Wednesday staff meeting time and so organisational things had been discussed on Thursdays instead (Lindy).

> That was something I wasn't really expecting. I thought we would just get into it having all those Thursdays…It is going slowly. Slowly (Elizabeth).

Although teachers had kept working on aspects of their plan fairly steadily throughout 2000 (Mary), not all their time together had been effectively spent. Meetings were not well organised:

> Some of them go really well and we seem to get a lot done but some seem to go nowhere and at the end of an hour and a half I just think what did we achieve in that?…We don't seem to use our time constructively…I expected we would have more of it done by now considering the time that we started. That frustrates me a bit (Elizabeth).

The principal did not see the need to provide teachers with strategic leadership by maintaining an overview and ensuring the overall coherence of the process. Although George had developed a Management Plan (see Exhibit 4:Ch 4) to support the Teachers' Pedagogical Plan, it had not been implemented to any significant degree. His resignation mid-year had allowed him to continue with his

role relatively unchanged. Ostensibly, George continued to support the teachers as they worked with their Pedagogical Plan, but this was not done in a consistent way. Instead, he adopted a somewhat 'hands-off' approach, allowing them to get on with what they were doing – neither providing leadership or creating the conditions where teachers were encouraged to lead – thus contributing to their lack of focus.

The Winds of Change

With George leaving at the end of the year and no replacement appointed, teachers were worried that the results of their collaborative efforts during 2000 might be lost. While they had the various documents they had worked on, they realised that unless they took the initiative, their work could be lost (Elizabeth).

> What happens when a new principal comes in? Who takes charge? It is a great idea to have all these things going but it is our place to say to the principal, we want to sit down and talk to you and tell you what we've done? Or do we wait for the principal to say, this is what I want done? What happens?…If we wait until the beginning of next year no-one is going to know what to do (Moira).

Given the hierarchical nature of the leadership in the school, this represented something quite new – a collective responsibility for what happened. Everyone agreed that action had to be taken.

> Everyone needs to have a say and we all need to be clear where we are going…We all have to be pretty clear about what (is said)…to the new principal (Mary).

The teachers agreed that they wanted to preserve the vision as it was reflected in the way they had written their policies (Mary). There was a confidence that the teachers, working as a group, could continue to move the school forward.

> Regardless of whoever comes in with the present staff, I think it will move ahead anyway. I'm sure it will because so many things have been implemented and we have just got to keep working on them. The curriculum meetings, the behaviour management, the nature of the staff meetings, are everyone's responsibilities (Mary).
>
> I think (*Into the Future*) has got us thinking. It has got us going. It has stimulated us and we should be able to sort out our own problems to a certain extent (Lindy).

Plans were made to revisit the vision at the start of the following year and the need to formulate a new Pedagogical Plan was recognised.

5.3.6 Emerging Understanding: My Perspective

Knowledge creation at Holy Cross demonstrates the dangers of assuming that given an appropriate process, teachers would be able to create contextualised professional knowledge and use it to enhance their practice, thus improving school outcomes. It illustrates how a range of factors, some hidden, others undiscussable, all unaddressed, can combine to produce a debilitating social and emotional climate which isolates and deprofessionalises teachers, leaving them with little voice. It demonstrates how a Lutheran ethos can become distorted when combined with poor leadership and structures that work to divide teachers and inhibit their professional learning. More optimistically, it provides insight into how the beginnings of change may be present in these difficult circumstances – despite progress with the *ideas* process being slow, uneven, and frequently frustrating for teachers.

The toxic social and emotional climate at Holy Cross had its roots in the failure of the principal to provide coherence in the structures of the school. In the absence of schoolwide programs, the curriculum was fragmented and teachers were not encouraged to work collaboratively. Their place was in their own classroom, working with their assigned group of students and minding their own business. In this climate, inquiry into the practice of others was likely to be interpreted as criticism while teachers talking about their own classroom successes were viewed with distrust, even derision. With no clear expectations or proper structures in place to monitor classroom performance, teachers were unsure of their personal efficacy. This was particularly devastating to long-serving teachers who had no realistic way of judging the success of their efforts. Everyone was aware of the declining enrolments, however, an indicator that carried within it the implication that teachers were in some way failing. Feelings of organisational inefficacy added to the individual feelings of despondency and stress while the emotions of guilt and shame grew out of these feelings of failure.

The newer staff members, mostly non-Lutheran and with experience in other schools, had an idea of what they were trying to achieve through their collaborative effort. For the longer serving staff members the lack of trust, combined with feelings of inadequacy, mitigated against this kind of activity. It was not safe, offering only the threat of greater exposure. Some teachers were not able to share their beliefs about practice because they were afraid of getting it wrong. This was compounded by the fear of moving out of the role of isolated teacher and 'big-noting' yourself, a move likely to attract criticism or gossip.

This is a profoundly emotional environment - where little 'care' was provided by the principal. It was an environment that did little to encourage teachers to share their knowledge or to collaboratively create new knowledge. Isolated in their rooms year after year, many of the teachers were uncertain of the value of what they knew. Their knowledge bases were informed by their initial teacher training, their Lutheran values and by whatever outside seminars or conferences they were individually able to attend. In the absence of a pool of shared knowledge and understandings within the school, it was up to individuals to make their own meaning of the knowledge they brought from outside. Professional isolation meant teachers were operating side by side with very different knowledge bases. With no coherent professional development structures and in a difficult social and emotional climate, those feeling insecure about their knowledge had neither the means nor the motivation to address the problem, but looked back with nostalgia at the 'great little school' that was.

Into the Future (IDEAS) represented significant new knowledge coming into the school. The way Holy Cross had been operating was vastly different from the image of the successful school provided by the Research-based Framework. The framework provided a basis for comparison. The *ideas* process required teacher collaboration and action – it gave voice to the teachers, recognised their professionalism and gave them a significant pedagogical leadership role. It was the first time that teachers had been brought together and expected to engage in collaborative knowledge work, inquiring into each other's practice. New 'space' for learning and for action was created, assisted by external facilitation, the mutualistic approach embedded in IDEAS and its no blame context. It is

interesting that this no blame environment also provided some 'care' and teachers were glad of the opportunity to take action. Through their engagement in *Into the Future*, teachers emerged from their classrooms to share their beliefs and understandings, generating a shared vision and an agreed schoolwide pedagogy. Translating the artefacts they had developed into action proved difficult, however. While the initial enthusiasm for *Into the Future* had partially abated the pre-existing conditions – their effect influenced the way IDEAS played out in the school, the action that was possible and the changes that ultimately emerged.

The collaborative action of teachers in the eighteen months of the *Into the Future* project, served to intensify a phenomenon that had begun as a result of the employment of non-Lutheran teachers in the school. As these new teachers brought different professional knowledge with them, specifically Lutheran teacher knowledge began to lose its currency. The knowledge valued within IDEAS relates to a more generic professional knowledge base. It is assumed that teachers are able to share their individual practical knowledge to generate a vision and schoolwide pedagogy. Some long serving teachers, aware of gaps in their knowledge and uneasy with the emerging new ways of working, were placed in a difficult situation. It is perhaps unsurprising that during that eighteen month period most chose to leave. They had played a significant role in the school within their classrooms, but were unprepared for this newly required role of collaborative professional. Given their previous experiences and Lutheran view of teacher professionalism such a transition would have required far more than an updating of professional knowledge.

It was very difficult for the teachers at Holy Cross to develop a shared cognitive system because for a significant number of teachers the espoused goals of the collaborative activity were different from the goals in action. For some teachers the goal was not to develop a shared vision and schoolwide pedagogy that, transposed into practice, would improve outcomes. Instead, the goal was self-protection, surviving in an unsafe environment, while halting the declining enrolments and improving the image of the school. Some of the teachers were trying to collaborate in the development of a cohesive curriculum and to share their practice but this was difficult work given the emotional climate. For some

teachers the opportunity for change represented a positive move forward, in line with their values and professional beliefs. For others, the change was difficult to deal with and intensified their stress. Even for those teachers willing to work collaboratively, the way forward was difficult. They were constrained by the lack of strategic leadership and support from the principal and by the social conditions in the school. There was little feeling of collective efficacy.

While the teachers did make some progress with their collective cognitions, the knowledge creation spiral had slowed early in its ascent because the initial professional discussions and sharing of beliefs had not been built on to any significant degree. During 2000, discussions had largely focused on the safe ground of Christian Studies, the Science program (taught by only one or two people) and the technical aspects of the English program. The degree of individual and group learning was severely restricted by the group's inability to engage in critical reflection. This somewhat defensive response of falling back on what you know or feel comfortable with was understandable in light of aspects of organisational reality that had not been publicly addressed[6]. There was benefit in coming together and engaging in dialogue, but conditions were not conducive to deliberation of the type that analysed and challenged what was happening in the school. However, while they were not using the knowledge they had created to change their classroom practice, they were making the most of an opportunity to have a say and to take some action to improve their disturbing and depressing lived reality (though this did vary from person to person).

The situation was further complicated by the principal's actions which indicated an ambivalence towards the new ways of working inherent in IDEAS. As the leadership and power structures in the school remained unchanged and resources were not allocated to allow the deprivatisation of practice, new ways of working were not encouraged. The operation of the school was still to a large extent being guided by the traditional Lutheran mindset of the principal, who appeared to have difficulty accepting the potential impact of IDEAS on school operation.

[6] Individual teachers at Holy Cross were willing to discuss problems they perceived with an outside researcher in a confidential interview situation. Thus, the research process itself may have made some contribution to the possibility of more public comment, in time.

The first real sign of the possibility of change came at the end of 2000, with indications of a new confidence and shared sense of responsibility emerging. There were indications of a subtle reimaging of the work of teachers in the school – an elevation of the value of teachers as collaborative professionals, and a move away from teachers positioned within a distorted Lutheran framework - isolated and inward looking within their classrooms. For the first time basic assumptions about how the school operated were being questioned, positions were put forward and challenging statements made without provoking a defensive response. This was the first indication of double-loop or generative learning and a sign that the social and emotional climate of the school was changing. The change was influenced by the imminent departure of the principal, and the staff turnover, but also grew out of the experience of collaborative action.

At the end of 2000, as the continuing teachers began to discuss what they needed to do to carry *Into the Future* forward, they were speaking in a way that was new and different. They were not waiting to be given permission to lead or take responsibility. It is difficult to imagine that the candid comments being made publicly at the November group interview would have occurred a year earlier. Teachers were beginning to bring concerns out into the open, there was less isolation and the educational process was becoming less fragmented. Although there had been problems with time – at least structures that supported connection rather than separation had been introduced.

There was significance too in the pattern of staff turnover with almost all of the long serving Lutheran teachers leaving the school –taking either early retirement or stress leave. The new teachers coming in could be expected to add to the knowledge base of teachers, adding to the available pool of more general professional knowledge. Previously, attempts had been made to socialise newcomers in the existing culture of the group and the long serving teachers had resisted changing their way of working. Now there was the opportunity to begin to focus on ways of working more in keeping with the beliefs, values and professional knowledge of the newer teachers in the school and, through establishing patterns of interaction more in keeping with collaborative activity, to bring about cultural change. The establishment of a communicative environment,

where common understandings are developed and meaning is shared - becomes a possibility. Organisational learning and cultural change may also grow out of new patterns of relationships established through collaborative effort. New connections were being made between teachers as a result of experiences they shared. While individuals reacted differently to collaboration, the relationships between some teachers were changing. Previously, the culture of the school had been so isolating that there had been insufficient contact between people to activate the 'connections' which might bring about change. Overall, *Into the Future,* may not have achieved the anticipated outcomes, but it clearly represented a critical phase in the school's development – one that opened up the possibility of change, and the possibility that knowledge created in the future may be able to be linked to classroom practice.

5.4 Knowledge Creation and Learning at Rainbow Terrace

Rainbow Terrace State School provides significant insights into knowledge creation in a school characterised by relationships of trust and support, feelings of efficacy, both at an organisational and individual level, coherent school operation, purposeful leadership and a focus on improving student learning. It is the story of the interplay between a school renewal process (IDEAS) and the model of school improvement being used by the principal to guide school improvement.

5.4.1 The Knowledge Creation Story: Initial telling

In its initial telling, the knowledge creation story at Rainbow Terrace is straightforward. For approximately one year, using the *ideas* process and guided by the IDEAS School Management Team, the staff worked together to develop an agreed schoolwide pedagogy. They shared their individual practical knowledge, making their beliefs explicit. Commonalities were identified and a series of shared beliefs recorded, along with existing school practices that demonstrated these beliefs.

Through their ongoing engagement in the *ideas* process, the teachers created a pool of contextualised organisational knowledge. This existed in the shared understandings they had developed through their discussions, their agreement

about what constituted successful practice in the school, and the shared language they used to talk about their teaching.

> (We) have gone through this whole process of common language…we all have words that describe things within the school…and we all understand what those words mean (Wanda).

The sharing of beliefs and discussion about practice helped teachers to identify common interests, prompting a number of teacher initiated collaborative activities (Samantha).

Over time, through synthesis of individual reflections, group activities and discussions, teacher beliefs and knowledge about successful practice in the school were recorded. These formed the basis of a pedagogical framework, the *Rainbow Terrace School Based Pedagogy* (Appendix 8). This document, which drew together collective understandings about successful practice at the school, was an important artefact in the shared cognition of the group. The benefits of developing a schoolwide pedagogy were variously described by teachers. These included having a deliberate articulation of successful practice to build on; building consistency across the setting; having teachers define what they really mean and what they want for the students; and having an explicitly agreed school pedagogy against which individuals can measure their personal pedagogies. The dynamic interplay between personal and schoolwide pedagogy was described by the principal in the following terms:

> At the same time as we are developing this school-based pedagogy, people are affirming and reviewing their personal pedagogies. You can see people doing little scale balances all the time…They will hear someone talk…and they will balance it in terms of "I'm like this" or "I'm not like this" or "I could be the same as". That's where a lot of that growth is happening, at a cognitive level (Doug).

This type of reflection could also help teachers, individually and collectively, to identify inconsistencies between their stated pedagogy and their actual practice.

> It is really easy to see other people's inconsistencies. It is much more difficult to see your own. Now…through ongoing discussions…we might be able to …identify different things that we do …that maybe don't really fit with where we think we want to be (Alexis: Staff Meeting).

The knowledge created by the staff was extended and their learning deepened as they moved on to developing a vision they collectively aspired to and that aligned

with their pedagogical framework. That achieved, in a further synthesising activity, a brief set of pedagogical principles were distilled from the more detailed pedagogical framework. These statements represented a summation of what characterised teaching and learning at Rainbow Terrace State School. The increasing pool of shared knowledge was reflected in the development of a more comprehensive schoolwide pedagogy document which included the vision, the detailed pedagogical framework, and the twelve pedagogical perspectives (Appendix 9). This artefact represented the culmination of approximately eighteen months of professional conversations, meetings and workshops. It played a key part in recording the cognition of the group, acting as a reference point that teachers could continue to engage with as a counterpoint to their personal pedagogy. The document also provided the means of communicating some of their shared cognition with new teachers coming into the school. It could also be used to inform parents of the distinctive nature of the Rainbow Terrace pedagogy.

Through taking knowledge from outside the school (the IDEAS Project), sharing their personal knowledge and drawing on the culture (organisational understandings) being intentionally constructed by Doug, the teachers had created shared contextualised knowledge. The knowledge they had created was evident in the cognitive interactions between teachers, and in the cognition captured in the schoolwide pedagogy document. By making their practical knowledge explicit, combining it with the practical knowledge of others and with public knowledge - learning individually and collectively as a result - the group had entered into a knowledge creation spiral, which involved sharing and then reconstructing their practical knowledge.

> Everyone has to reconstruct their knowledge. So when we sit down and we see people working through the *ideas* process, it becomes very evident that when we share a bit of knowledge everyone has to go away and reconstruct that. That is the slow bit (Doug).

The success of this knowledge creation story is to be understood in the context of the broader story of Rainbow Terrace. Conditions to support organisational learning were clearly present in the social and emotional climate of the school. While teachers supported each other, however, they could be critical of 'inappropriate' practice that might negatively impact on students:

> If you have a bad day…there's always someone who's got the time to sit down and…debrief with you and have empathy but not necessarily be sympathetic because if they consider you've handled it incorrectly, they'll let you know what a better way would have been…so you've got a better chance of doing it next time (Margaret).

While the school is a challenging place to work, teachers have recognised the need to adapt their pedagogy to meet student needs, and data demonstrate that student outcomes are improving, particularly in literacy, but also in numeracy and in student behaviour (Doug).

Features of the cognitive life world of teachers also supported organisational learning at Rainbow Terrace. There is an explicit valuing of 'working and useful' knowledge that teachers can use to improve their practice (Julia, Alexis).

> If I need to know something or develop something all I have to do is ask…I can go to…anyone on this staff if I need to. Then I can sit down and quietly think about it and if it still isn't working for me then I can go to the DP or the Principal and say is there someone on staff who's better qualified than me to work on this and that's how we do it…We work together…We don't sit in isolation, ever (Margaret).

While providing practical advice and support when asked is viewed positively, "flying your own flag" (Rachel) by talking about all the wonderful things you are doing in your classroom is seen as divisive (Samantha). Knowledge is generally exchanged in the context of responding to queries about specific classroom activities or practices. Sharing of successful practices can also arise from discussions about a problem which someone has identified.

> …that's when people feel free to say 'well, this is what I do…and everyone else can go, 'yeah, that's great but I am going to change it to this, this and this'. Then all of a sudden, you've got that professional dialogue happening without that feeling of 'I'm putting myself forward'. Because it's just an Australian thing, you just don't push yourself forward. It is also obnoxious when you are listening to people who are constantly telling you how wonderful they are (Samantha).

New knowledge also flows into the school from outside professional development activities. After attending workshops or courses, teachers report back to the staff, discussing what they have done, debating whether it would enhance what is already happening in the school, and generating interest. As an example, school wide involvement in a perceptual-motor skills program grew out of the enthusiasm of two teachers who had attended a seminar. Some new knowledge,

like the Glasser Basic Training, was intentionally brought into the school – some came in incidentally with visiting teachers:

> …because this school is now so well known a lot of people get to chat to other teachers who come to visit and it just keeps enhancing everyone's practices (Samantha).

The findings of this study, however, indicate that the understanding of knowledge creation that emerges from Rainbow Terrace is not so simple. The dynamics and implications of knowledge creation in this case can only be understood by exploring the principal's perception of IDEAS and his motivation for bringing the school into the project. While the initial telling of the knowledge creation story is not incorrect, it is incomplete.

5.4.2 The Knowledge Creation Story: A More Telling Analysis

The initial telling of the Rainbow Terrace knowledge creation story assumes the perspective of IDEAS. While all the things described did occur, the dynamics and implications of the knowledge creation cannot be fully understood unless the specificity of the school is taken into account, in particular the leadership of the principal. Knowledge creation at Rainbow Terrace can only be partially understood through the discourse of IDEAS. A more complete understanding requires an exploration of the mental model of the principal, made explicit in the Total Systems Model (see Exhibit 5: Ch.4). The Model is the guiding theory of Rainbow Terrace, determining how the principal understands the school, influencing his style of leadership and, through his culture building activities, impacting on the life world of the school. More specifically, the Model acts as a means of control by filtering out knowledge which does not fit within the parameters it delineates.

The Total Systems Model, intentionally constructed by the principal, working with the staff and with parents, has been reified by him, is filled with meaning for him and exerts a great influence over his thinking. The teachers perceive the Model as belonging to the principal and of little significance to them, not recognising the powerful influence it has on what they do, and what they are able to change. While little connection is made between their lived reality and the diagram on the wall in the principal's office, what the Model describes has

become embedded in their school culture. It has also exerted a powerful influence over the significance and potential of the knowledge they were able to create through IDEAS.

During the *ideas* process, teachers did share their beliefs and discuss their personal pedagogies. However, the ground had been well prepared by previous staff involvement in the development of components of the Total Systems Model. Much of Doug's culture building work was now being reflected in what teachers were sharing about their beliefs and their practices.

> While it is gratifying to see commonalities in beliefs, it would be a concern if there were discrepancies there. We have had a lot of those discussions in a variety of ways (Doug).

The principal, acting as a transformational leader, had intentionally set out to build a school culture in line with the Total Systems Model. Rather than challenge their basic beliefs, he had begun by asking them to suspend their beliefs for a while, try some actions and look at the results:

> Basically what I said to staff was, look…I am not going to talk to you about any belief systems…I will be honest with you if the data we collect shows that it is going worse, we will drop it. I gave them a few little things to do in terms of behaviour management and things improved. I said, do you want to know some more and they said yes (Doug).

These small initial successes with behaviour management encouraged teachers to follow Doug's lead, to trust him and try the things he suggested. As the things they were doing were consistent with Choice Theory and the Total Systems Model, they were being what Doug described as 'unconsciously competent'. Teacher practice was also being influenced by structural changes, for example, the teaching of reading became more individualised as a result of the way the resources were organised. Teachers were unaware of the extent to which concurrent innovations were related to each other, or that they were all part of the implementation of the Total Systems Model. However, while the coherence of the Model enhanced the ability of the principal to transform Rainbow Terrace from a school in crisis to a school increasingly held up as an example of success, it constrained changes generated outside its parameters.

IDEAS came into Rainbow Terrace with it its own coherent systems model, the Research-based Framework. The principal understood this, but focused on the *ideas* process, using IDEAS as a tool to enhance the Total Systems Model in the area of schoolwide pedagogy. As the facilitators were not making this distinction, two agendas were operating in tandem. IDEAS was ostensibly driving the knowledge creation process, but only being allowed to do so within the constraints of the Total Systems Model. As this dynamic was hidden, any divergence between the agendas created ambiguity and uncertainty. The principal knew what he wanted to achieve and encouraged those parts of the *ideas* process which furthered his aims. Where the processes started to drift apart, he exercised a benevolent control, bringing the knowledge creation occurring though IDEAS, back in line with the development of a school-based pedagogy to fit with the Total Systems Model. The IDEAS School Management Team and the facilitators were aware of patches of difficulty in the process, but unaware of their origin.

The school-based pedagogy document did represent new knowledge generated by teachers at Rainbow Terrace. The knowledge captured through ongoing discussion had not previously existed in an explicit form. Through their discussions and development of the pedagogical framework, there was a greater professional connectedness between teachers and a strengthening of professional relationships. However, as the discussions were based on existing practice, the school-based pedagogy document represents single-loop or adaptive learning. Double-loop learning was not permitted by the Total Systems Model as, by its very nature, it sought improvement within its existing parameters. Knowledge which did not fit within the parameters was turned back. One teacher spoke of ideas being listened to by the principal but not acted upon. Another noted that some suggested innovations appeared to come up against a wall and go nowhere. The wall referred to is the parameters set by the Total Systems Model. Additionally, another subtle process was at work. During the ongoing professional conversations a variety of teacher beliefs were expressed. Those that matched the beliefs the principal was intentionally building into the culture were affirmed and incorporated into the pedagogical framework, those that hinted at a different view were ignored or perceived as resistant to positive change. The pedagogical framework, as a representation of the shared views of the teachers,

was a document of great significance in the quest for cohesion. The beliefs of those who shared the worldview of the principal were foregrounded as 'our shared beliefs', becoming increasing enshrined in the Model.

> The Total Systems Model simply says this is what we have agreed - our beliefs and values (Doug).

During a pupil free day in mid-2000, groups were drawing out commonalities in the personal pedagogies. The teachers reporting back on 'shared beliefs about behaviour' chose their words carefully, saying 'this is our interpretation of what was written' but without actually endorsing the beliefs. The facilitator reiterated the Glasser theory based beliefs that had been reported, and asked if anyone had had difficulty with that particular view of human behaviour. Three teachers responded positively – nothing else was publicly said. Contrary views were sometimes expressed in small group discussions but not raised in whole staff forums.

The schoolwide pedagogy documented how to be an excellent teacher within the existing parameters. Teachers already operating in this mode could use it to refine their practice and teachers operating differently had a clear statement of expectations, which could be tied into school accountability processes. Paradoxically, while the document was developed, agreed to and owned by the staff, the new knowledge created represented the pedagogy the principal was trying to embed in the school. Thus, IDEAS was a way of bringing a pedagogy which fitted the guiding theory out into the open. Through IDEAS, the teachers had 'created', and made explicit, knowledge that fitted the intentionality of the principal. The process had been guided by those already socialised into the culture he was building, but themselves guided by the rationale of IDEAS. At times of ambiguity and uncertainty, the principal had unobtrusively guided the process back onto his track. His success was greatly assisted by the high regard he was held in by teachers and by the avoidance of conflict intentionally built into the school culture. This is reflected in the twelfth pedagogic perspective which identifies 'absence of criticism' as a key component of a supportive environment. While supporting positive relationships this also had the effect of preventing critical appraisal of practice legitimised by the Total Systems Model.

5.4.3 Knowledge Creation in the IDEAS School Management Team

While it is important to acknowledge the influence of the Total Systems Model on the knowledge generated through engagement in IDEAS, it would be wrong to assume that only the intended knowledge was 'created'. Within the IDEAS process a significant role is played by a school-based team of teachers (the IDEAS School Management Team), and, over time, this group evolved as a professional learning community in its own right. In its early stages, the IDEAS Team had acted as little more than a sounding board for the facilitators, but gradually began its own process of learning. At their meetings, they discussed pedagogy and planned workshop activities for the staff. They worked out ways of engaging the staff with the notion of schoolwide pedagogy, developing activities for the exploration of personal beliefs and the identification of shared elements. They identified successful practices in the school and discussed reasons for these successes given the challenging context. These meetings provided the opportunity for beliefs to be discussed and assumptions challenged, in a positive and purposeful way. As a group, the IDEAS Team was developing its own shared understandings and constructing its own meanings.

Individually, teachers participated in IDEAS with different degrees of commitment, though, as a group the staff contributed significantly to the development of the school's pedagogical framework. The most significant learning, however, happened within the IDEAS Team. This group was planning activities and working with the material produced by staff, taking it back to the staff in the next stage of its development. As an example, the staff produced a number of options for the school vision. The IDEAS Team worked with these and produced two options for further consideration. To expedite the process, the distillation of the school's pedagogical framework into twelve principals was undertaken by the IDEAS Team. While maintaining ongoing consultation and the involvement of staff, the responsibility the IDEAS Team had taken on, the planning they carried out and the community they developed meant they were engaged at a deeper and more purposeful level than the broader staff.

The following extract from a meeting of the IDEAS Team in late 2000 provides an example of their professional interaction. The group, all classroom teachers,

were engaged in a discussion about professional development. The view that this necessarily involved experts from outside the school was being held up against the view that teachers learning from each other through dialogue also constituted valid professional development.

> *Susan*: I see professional development as someone coming in (from outside) and talking to us…whereas professional dialogue is just a talking amongst ourselves
>
> *Anne*: But you are learning new ideas. (Margaret agrees)
>
> *Rachel*: We don't really think of (professional dialogue) as professional development …because we know who we really are! We treat it as informal…it is just sharing ideas.
>
> *Margaret*: But isn't sharing ideas part of professional development? I mean if you pay someone (from outside) to some in, all they are really doing is sharing ideas. Either you take them on board or you don't take them on board.
>
> *Susan*: We see them as experts.
>
> *Margaret*: I understand that but what I am trying to say is that we are equally expert. We have had as much experience we just don't put up our plaque and do professional development. Our sharing is equally as valuable, maybe more so in some cases because you ask things you need to know at that time.
>
> *Rachel*: But…I know I still see it as sharing which is really great and it is really practicable but that professional development is different...I need a paradigm shift! But it will take time for that internal change to take place.
>
> *Margaret*: Because that is what we have been taught to believe.
>
> *Julia*: And we don't think (our practical knowledge) is anything very special. It is just what we do every day. Those people who actually recognise the value obviously have this very good belief in themselves and their competence…they believe this is something different and worthwhile for other people to know. Whereas a lot of people probably do that themselves but never think of it as wonderful or great that anyone else needs to know about. It is just something that works for them.

This was an important discussion, representing the beginnings of a significant shift in the perceptions of the group about the value of learning from each other and from successes within the school. Team members also recognised that they were learning new professional skills through their involvement in IDEAS, skills that were increasing their capacity to work collaboratively. They recognised that working with their peers, getting the whole school involved, required some professional development of a different kind.

> We've had to run workshops and do all sorts of things we've never had to do before…we've actually had to skill ourselves, so it has been a professional learning curve for me because I've been slotted into roles that I have never had to fill before…Often, you have only got to take the first few steps and you develop an ability to do what you've never been able to do (Samantha).

The learning of the IDEAS Team was important. They were clearly building their capacity to make an effective contribution to the development of the school. They were becoming more confident in exercising leadership roles in the school – collaboratively leading from within the staff. They were beginning to take on a role likely to bring them into conflict with the Total Systems Model. From the principal's perspective, IDEAS had fulfilled its purpose, a school-based pedagogy had been developed which was consistent with and enhanced the Model. The IDEAS Team believed there was still work to be done and that the process was not complete.

5.4.4 Emerging Understanding: My Perspective

This account illustrates what can happen in a school where, as a result of competing agendas, the official story of knowledge creation significantly differs from its lived reality. At Rainbow Terrace, the effects of this difference were effectively hidden by the good relationships between the principal and teachers. Where frustrations did surface, they were not understood because the dynamics of the knowledge creation process were not explicit. The principal understood that he and the IDEAS Team were working from different mental models but never raised the issue, effectively hiding the degree of control he was exercising. Those beginning to question his increasing involvement in (and guidance of) IDEAS, risked being marginalised or having the process shut down. This was a genuine concern as, from the perspective of the principal, IDEAS had achieved its purpose.

Within the Total Systems Model, the principal is the transformative leader. Once the parameters delineated in the Model have been internalised, teachers are encouraged to take leadership roles, to improve what is there. Within IDEAS, the principal has a strategic leadership role while the teachers take responsibility for pedagogical leadership – the leadership roles are different but equally important. The *ideas* process encourages teachers to engage in double-loop or generative

learning, questioning basic assumptions about their practice and challenging the existing boundaries. Such learning is not possible at Rainbow Terrace, because teacher leadership could only be enacted within the parameters of the Total Systems Model.

The positive social and emotional climate at Rainbow Terrace, along with the intentional relationship building carried out by the principal, provided a good foundation for the knowledge creation process. The teachers are socially and emotionally supportive of each other, and supported by the administration. They know what is expected of them and a strong sense of collective efficacy is evident. The shared communicative environment intentionally developed by Doug and reinforced by the *ideas* process provides an excellent basis for the professional conversations needed to make tacit knowledge explicit. Through IDEAS, the shared language was significantly developed.

While the positive social and emotional climate in the school clearly supported the *ideas* process, the avoidance of conflict and criticism embedded in the culture of the school made it impossible for teachers to critically analyse the dynamics of school operation. The culture worked to prevent the boundaries – the parameters set by the Model – from being challenged. The Total Systems Model did not allow the public expression of oppositional views which introduced conflict and damaged the positive relationships. As no one wanted to risk upsetting Doug, this was never challenged and he was able to subtly but firmly exercise control through the culture he had created.

Although the Total Systems Model was the dominant paradigm for school renewal at Rainbow Terrace, IDEAS did have an impact on the school. New knowledge was created by the staff. Through their discussions, the teachers explored different layers of pedagogy, creating meaning, and constructing shared understandings. The pedagogical framework was an important artefact which represented a significant amount of shared learning, both during and pre-IDEAS. While the knowledge they created was influenced by the knowledge contained within the Total Systems, it was not totally constrained by it. Through shared understandings and shared meanings, new connections were being forged between teachers, new possibilities for collaborative action were opening. New

capacity for teacher leadership was being built, particularly within the IDEAS Team. In this culture building activities, Doug had encouraged organisational learning through the continual reinforcement of particular patterns of shared thinking. Then, with something new to respond to, a group of teachers began to bring about change to that shared schema – to create new connections.

For the principal, the pedagogical framework was an important step in building the school's capacity to maximise student learning. It complimented and reflected the Total Systems Model, and provided the basis for deepening the culture he had intentionally constructed. While it had been created as the schoolwide pedagogy in the *ideas* process, to a significant degree the framework represented an explicit statement of the beliefs that the principal had intentionally nurtured. It is reasonable to assume that over the previous three years his actions and the beliefs he had communicated had impacted on the practical theories and tacit knowledge of the teachers. He had deliberately asked them to suspend their beliefs and just 'try some things'. The successes they had experienced as a result would presumably have impacted on both their 'know how' and the cognitive dimension of their tacit knowledge. The ground had also been very well prepared through all the discussions occurring during the construction of the various components of the Total Systems Model. Because of the coherence of this Model, the implicit schoolwide pedagogy, now made explicit, was embedded in a whole range of structures and processes in the school. As such, the pedagogy was already linked to practice. The IDEAS Team were unaware of this dynamic. Within the *ideas* process, the vision and schoolwide pedagogy are developed and continue to be developed through review and refinement. The fact that the pedagogy (partially at least) was already being enacted was the source of more ambiguity.

For the IDEAS Team, the development of the pedagogical framework was only one aspect of their project. They had made other progress from within the IDEAS school renewal perspective. Some members of the IDEAS Team were beginning to see the potential of teacher leadership – with them taking a pedagogical leadership role. The vision developed by the staff, at first resisted by the principal, then cast as a vision for the school-based pedagogy, had by late 2001 become the vision for the whole school, and a formal part of the Total Systems Model. The

dynamic interplay between the two school renewal processes was interesting - where they complimented each other, no tensions existed – where they were working towards different objectives, the *ideas* process was constrained and there was ambiguity and frustration. At the same time, the seeds of change were being sown. Capacity for collaborative action and teacher leadership had grown. Importantly, too, IDEAS represented an alternative shared cognitive system to the one the principal was intentionally promoting and scaffolding.

The appointment of the 'disastrous' principal in 1996 had marked the start of a critical phase for the school. When Doug came into the school he demonstrated great leadership, restoring confidence and setting systems in place that turned the school around. Under his leadership, the school began to operate with great coherence, and the teachers responded very positively to the high level of care that he generated. At first glance, IDEAS does not represent a critical phase at Rainbow Terrace. It may however begin to demonstrate that the great strengths of the principal, his undoubted competency, have the potential to become rigidities that may constrain knowledge creation in the school. While the Total Systems Model has the built-in capacity to 'turn back' knowledge that does not fit with the dominant organisational knowledge, this filter has not been wholly successful. By using IDEAS to enhance the Total Systems Model, Doug has unwittingly introduced new elements into the school that have the potential not only to challenge the parameters of the Model, but also to render it superfluous. The knowledge creation story at Rainbow Terrace continues to unfold.

5.5 Knowledge Creation and Learning at Willowbank

Willowbank State High School yields insights into two significant aspects of knowledge creation. Firstly, it illustrates how a group within a school may develop into a professional learning community and successfully create knowledge which transforms their practice. Secondly, it reveals insights into the dynamics and implications of knowledge creation as the group tries to share its learning, spreading it across the school. This account grows out of the story told in Chapter 4, but explores in detail the inner workings of the IDEAS Group, only alluded to previously, before considering the implications of this for other groups on staff.

5.5.1 The IDEAS Group

The IDEAS Group came into being almost by default, the result of a group of ten teachers volunteering to keep the school renewal process going after a disastrous staff workshop. It brought together teachers of different ages, with different backgrounds, worldviews, knowledge bases and experience. Supported by the external facilitator (university), the group forged their own path through the *ideas* process. Although they provided information and consulted with the staff at appropriate junctures, they were the heart of the knowledge creation process which produced a vision and schoolwide pedagogy.

Sharing and Deliberation

The diversity of the group, while being a great strength, also provided challenges. Common ground had to be found before agreement could be forged. This involved sharing and intense discussion – a process that could be quite stressful. While the group had come together because of shared concerns, individual members had different ideas about what should drive their planning, teaching and learning. Reconciling different views could be like:

> …working in a minefield where you want everyone in the team to feel that they have participated in the process and you want to come up with something which is valid and something to be proud of (Zoe).

While the group had to deal with ambiguity and uncertainly (Zoe), their professional dialogue was energising and carried them forward. Being able to talk "with absolute enthusiasm" about their classroom practice helped to build the type of cohesiveness where all views were valued and being able to "discuss things and hear everybody's ideas" allowed the exploration of difference (Michelle). Everybody had their say, not only the more dominant personalities in the group (Zoe).

> We were very open to the fact that everybody had the right to say whatever they wanted to…it was good to see everybody's different point of view and… see where those differences were and why they were different (Geoff).

This was challenging work for the group. Such a mixture of teachers had not previously come together to share their beliefs and practical knowledge. Working to develop a school vision and a shared pedagogy through exploring difference

and building shared understanding was emotionally and intellectually taxing work.

> You think it is really easy to come up with a (vision) statement but it's not because everyone has different ideas…and we all had different ideas of…what we wanted to drive our planning and teaching and learning…we (had) different ideas that we had to work through (Zoe).

By the end of 1998, a draft vision and a plan of action had been developed and received the endorsement of the staff. The following semester, the group continued its efforts with even greater enthusiasm, refining the vision, developing a schoolwide pedagogy in the form of concepts and questions and trialing what they had created. This was a significant period of learning for the group, both collectively and individually.

Group Learning and Development of Professional Community

In the course of their deliberations, the group learned the "importance of really debating what we want for our school" (Emma) and "the power of actually focusing on what we do in classrooms" (Michelle). They learned that it was possible to engage in professional dialogue and critical thinking across Departments, learning from each other about different forms of pedagogy and assessment and different ways to motivate students (Michelle). This was made possible by the group's increasing respect for difference in practice.

> I feel that I can talk to any member of that team about any of my lessons and they will respect what I'm doing and I don't think that's happened much between Departments before (Mandy).

Group members recognised their collective learning, suggesting it had grown out of their shared purpose, shared experience and professional dialogue. This involved connecting as a group, being tolerant and respectful of each other, and building a better understanding of other points of view (Emma, Geoff). Emma perceived that "working as a team…was our greatest learning" especially given some of the dominant personalities.

Despite their initial diversity, the IDEAS Group generated significant knowledge through learning together. The shared meaning they had developed over months of intense discussion was represented in the vision, concepts and questions. They owned and cherished what they had created, and were proud to be associated with

it (Geoff). Commitment to living the vision grew out of their ownership, and the depth of meaning it contained for them. It was a very different experience to being handed a vision:

> …created top-down by the boss (where)…the flavour, the essence, the true meaning of what is said (doesn't) actually come through (Geoff).

It was clear that as a result of their deliberations and climate of trust, the IDEAS Group had become a professional learning community. As Michelle observed, looking back, this was where the rhetoric had met the reality:

> …all the stuff that I've read about for years I'm actually seeing enacted…the shared dialogue…(with) people genuinely having to think and reflect and draw on the inner professionalism…we were happy to listen to each others' ideology and belief systems and it even got to the point where we could argue and challenge what each other thought and felt and how that impacted on the school. (We)…had a really clear idea of what we stood for and what our common and shared beliefs and purposes were (Michelle).

Individual Learning: Impact on Practice

While the group learned together, creating a cognitive system of shared meaning and understandings, individual learning was also taking place. A diverse group of individuals had come together and shared their values and beliefs about practice. The supportive conditions within the group allowed beliefs and understandings to be held up for discussion, to be clarified, justified and enhanced by the beliefs and understandings of others. Individually, group members took away a variety of learning. One reflected that the professional discussions were a "wonderful base" for professional growth and allowed a refocusing on the positive aspects of teaching in times of stress (Zoe). Another important individual learning was the development of tolerance and an understanding of how other teachers think about teaching. This made it easier "to accept difference without getting frustrated" (Emma). For some, growth involved letting go. The internal facilitator (and Deputy Principal) acknowledged she had learned to go to meetings with no pre-determined ideas. This was a significant shift in leadership style.

This process of learning was intensified when the members of the group decided to trial what they had created. They took their new knowledge back into their individual classrooms to apply what they had learned. Each member of the

IDEAS Group chose how they were going to trial their agreed pedagogy. Some chose to use the concepts and questions to plan units of work, some to inform their classroom practice in an explicit way, and some to evaluate units of work or specific projects. The effects were very encouraging:

> It has certainly changed my practice…using the concepts and questions to take a structured approach to changing my teaching - in order to be able to teach in ways that allow disconnected kids to reconnect with school…I have recognised the need to change to a facilitator of learning but I've also learned that the more you ask kids, the more they'll do (Emma).

> It's definitely changed my teaching – it's an awakening… I've changed what I believe is important in terms of what kids can do and can't do…my focus has changed more to where I think the kids should be going…it has given me the confidence to say well now I know what is important rather than always doing what you have always done (Geoff).

> I find that my teaching has improved, I find that I understand more about what I'm doing, why I'm doing things and I find that's been an improvement (Mandy).

The concepts and questions also raised awareness of aspects of teaching not necessarily verbalised or recognised in planning. For Zoe, they provided a broader view of the purpose of her programs, taking the focus off teaching to the next assessment piece.

> I pay more attention to…focusing on what I want them to learn that they will take from Year 8 to 9, 10, 11, 12 out into the community…and to get a job and be worthwhile, participating members of the community (Zoe).

Linking the contextualised professional knowledge they had created to action in the classroom deepened their individual learning, enriching their tacit knowledge. It also provided the basis for further group learning as individual experiences were shared and discussed. The group had entered into the knowledge creation spiral, learning individually and as a group, sharing and enriching their knowledge.

> It's definitely group learning because it's had spin off effects on the school but it is definitely individual learning too because the transfer of practice comes when those individuals go back to their classrooms and actually action it (Michelle).

As a result of their deliberations, the group had created a pool of shared meaning, which, in their various ways, members drew on as they trialed the knowledge they

had created in their classrooms. Their ongoing learning was reported back to the group, enhancing their shared learning.

The IDEAS Group reached a critical juncture when they had trialed the vision, concepts and questions. Significant knowledge, generated within their professional learning community, had been transposed into practice with an encouraging degree of success. The group now faced the challenge of spreading this learning across the school without diluting the meaning of what they had created. They faced the associated challenge of sharing their deep sense of commitment to this new knowledge with colleagues who had not been through the same process of creative deliberation.

The story of spreading the learning across the school forms the second part of this account. Members of the IDEAS Group used the metaphor of a ripple to visualise the knowledge they had generated spreading outwards, circle by circle, across the school. Emanating from the group and their learning, the effect of the ripples was experienced differently by different groups on staff. The following account builds on the story told in Chapter 4, providing insight into the workings of the ripple effect, and exploring the underlying dynamics of the process.

5.5.2 Spreading the Learning: The Ripple Effect

The IDEAS Group began the process of spreading the learning by sharing their experiences of the initial trial with the whole staff, explaining what they had done and the impact on their classroom practice. This was followed by a mentoring and report back session in May 2000 (Appendix 10) and culminated in a schoolwide trial and report back in Term 4, 2000 (Appendix 11), the details of which are described in Chapter 4.

During the various phases of the trials, the IDEAS Group deepened their own learning, using the pedagogical framework to guide and evaluate their practice (Emma, Cassie, Geoff). Missing the intense dialogue of their previous meetings (Cassie, Emma, Zoe), they continued their professional learning through mentoring (Cassie). While spreading the knowledge and the learning across the whole staff was diluting the IDEAS Group, it re-engaged them with other staff

members (Zoe), helping to pass ownership of the process back to the full staff (Emma).

Mentoring and Trialing

After an uncertain start (Michelle), the initial mentoring rounds met with some success (Cassie, Trevor, Emma, Rebecca, Geoff). Incidental learning, through exposure to colleagues successfully using the pedagogical framework, was also having an impact (Geoff). An extended mentoring model was used for the schoolwide trial with IDEAS Group members working with groups of teachers during two staff meetings, supporting and scaffolding their learning in a non-threatening way (Emma). These meetings provided opportunity for experiences to be shared, positions to the considered and trialing possibilities to be explored.

Truly believing in the knowledge they had created, the IDEAS Group were confident that once teachers had begun trialing the pedagogical framework, they would begin to understand the difference it could make to their classroom practice (Emma). Through their own experiences and the experiences of others, the word would spread:

> They would see just from what other people had been doing and the experiences that other people had been having, how successful it can be and that it has been across the board…across a range of subject areas (Cassie).

The flexibility of the concepts and questions, a major strength, was reflected in the trials. They were used in many different ways, allowing difference to be taken into account, and diverse professionals to maintain a common orientation (Michelle, Zoe). Teachers were generally positive about their trialing experiences, using the concepts and questions in a wide variety of ways with some positive student responses (Gavin, Joshua, Rebecca). Some teachers noted how they had varied their practice as a result, giving students more say in their learning (Jessie, Emma), making units or events more relevant (Trevor, Gavin, Rebecca), lessons more interesting (Tim), and reviewing more meaningful (Geoff). Teacher awareness of good practice was also heightened (Leslie), and there was a growing realisation that implementation of the concepts and questions might not mean the radical change in practice that some had feared (Joshua, Zoe). While levels of

commitment varied (Geoff), and many teachers still needed to be reminded, progress was being made (Rebecca). Emma perceived that the ripple was spreading through growing awareness and gradual acceptance.

> We'll never have everyone, but that's OK. As long as we keep…valuing the fact that people are doing something, then we'll keep growing (Emma).

Developing the Pedagogical Framework

While the IDEAS Group had been central in creating the pedagogical framework, they hoped that ownership would begin to pass to teachers through the schoolwide trial (Zoe). It was a data collection exercise, giving everyone a voice, seeking to bring concerns out into the open so they could be addressed (Geoff). It provided the opportunity for those on the margins of acceptance to be brought into the dialogue and engage with the process. The group was open to renegotiating the framework, in response to staff feedback, to ensure that it worked for all teachers (Cassie, Geoff). It could then be embraced by the whole school as a guide to practice and, through its use, teachers would be preparing students for the twenty-first century.

> I believe that we are looking at what the world is like and we are then trying to get this school pointing kids in that direction. And their teachers in that direction as well (Emma).

Positive Indications

As 2000 progressed, the pedagogical framework gained some credibility from the sustained enthusiasm and perseverance of the teachers in the IDEAS Group. They displayed significant leadership, confidently proceeding into a schoolwide trial during Michelle's absence during Term 4, working with the rest of the staff, rather than off on their own (Rebecca). Having respected teachers taking up-front roles at staff meetings helped to counteract some of the negative feeling that IDEAS was driven by the administration and would soon be overtaken by another new project (Geoff). IDEAS had gained its own momentum (Cassie, Geoff).

Other positive indications of the impact of the *ideas* process in the school were noted. It was perceived that the social climate had improved, teacher morale was higher, and there was a greater sense of harmony and cohesion in the school

(Emma). There was increasing professional dialogue and interaction between Departments (Cassie, Dave), signalling the emergence of shared pedagogical understandings across disciplines. This was a very positive development (John), giving teachers new opportunities to learn from each other (Rebecca). Through dialogue, teacher commitment was growing, a common language was developing and a learning community was being established (Emma, Zoe).

> We're starting to see those conditions and then we'll get to a point where we're really less threatened to analyse in depth and critically our class room practices…If you don't have dialogue about teaching and learning…then you really don't have the opportunity to challenge what you're doing, so you're not going to change. You are just going to do what you've always done (Emma).

Teachers at Willowbank usually had good opportunities to participate in outside professional development activities (Cassie, Emma, Rebecca, John), providing an avenue for new knowledge to come into the school. The ongoing focus on IDEAS, the time allocated to the trials, the sustained professional conversations – all contributed to a changing balance between knowledge generated inside the school, and knowledge flowing in from outside (Rebecca, Cassie, Zoe).

5.5.3 Other Dynamics: Less Obvious Factors

At one level the IDEAS Group were successfully spreading their learning across the staff, sharing the knowledge they had created through the supportive and non-threatening processes of mentoring, trialing and sharing. While the depth of learning and the levels of commitment varied between individuals, all but a handful of teachers were gradually taking the pedagogical framework on board. Other factors were coming into play, however, factors not readily observable, and not always directly related to IDEAS.

Evolving Groups: As the Learning Spread

In the early stages of the process, the IDEAS Group was at the core of the learning, a small number of teachers were being mentored, and most of the staff were only peripherally involved. As the various trials proceeded, different groups began to emerge, depending on their degree of involvement with and their attitude towards the pedagogical framework. By the end of 2000, it was generally agreed that three main groups had evolved: the highly committed IDEAS Group; a

loosely defined ‘middle group’; and a group of teachers resistant to IDEAS (Cassie, Rebecca). Estimates of the size and composition of these groups varied. Those supporting IDEAS suggesting that all but a very small group were ‘on board’ either actively engaged with or, as least, positively disposed towards the pedagogical framework (Cassie, Geoff, Rebecca, John, Dave). Those resisting the learning suggesting that up to 50% of the staff had no time for it whatsoever (Blake).

It is not surprising that estimates of the extent of the learning varied. Members of the IDEAS Group were so committed to the knowledge they had created and believed so strongly in the power of its application that it was difficult for them to perceive the degree to which other teachers were taking it on board. The position of the resistant group was relatively straightforward but it was far more difficult to gauge what was happening with teachers in the middle group. As Appendices 10 and 11 indicate, many of the experiences reported back to the staff did not necessarily denote significant engagement with or learning from the use of the pedagogical framework. Members of the IDEAS Group gave no indication that they perceived this as a problem, though one admitted that it was difficult to be objective (Zoe). Expressing a view from the periphery, Trevor recognised that it was hard for the people in the IDEAS Group (the ones ‘inside the circle’) to take a step back and see what was working in the school. While they believed that wonderful things were happening, a significant proportion of the staff maintained they had done nothing different (Trevor).

Communication and Use of Time

A tension arose over the allocation of staff meeting time to talking about IDEAS and reporting on the progress of the trials. The IDEAS Group believed it was important for the staff to be aware of how the *ideas* process had developed. The resistant group was not interested in this and suggested that teachers were bored and alienated by the attempts to keep them informed (Blake, Trevor). Too much time was wasted on the airy-fairy stuff (Trevor). For some, the report back sessions provided the opportunity to hear what teachers from other curriculum areas were doing, and how they had used the concepts and questions (Jessie, Rebecca). For others, they were seen as an intrusion of little practical value into a

busy working day. Reactions to listening to the lengthy report back sessions report included it being a total waste of time (Blake), of little practical value (Trevor) and interesting but overlong for busy teachers (Rebecca, Jessie).

> When we sit in staff meetings and listen to what everyone else is doing …sometimes its not the process that people are being tired for, it's the fact ….I mean its interesting to hear what everyone else is doing, but on a Thursday afternoon when you've all got marking to do…sitting and listening what's happening in the Art Department, I think that's what makes everyone tired and lack-lustre, rather than the actual process (Rebecca).

For the schoolwide trial, additional staff meeting time was allocated for professional conversations in the group mentoring process. Again, there was some ambivalence about this use of time.

Positioning: The Negative Effect

A number of teachers alluded to their feelings of vulnerability when standing up in front of their peers and talking about their successes. Even the IDEAS Group, full of enthusiasm for the knowledge they had created, had felt nervous and anxious standing up in front of the staff for their first report back session (Cassie, Emma). In an attempt to avoid being 'bagged', one of the first teachers to be mentored tried to reduce her vulnerability by selecting things that were outside her normal curriculum, things that she believed would work (Rebecca). Given the behaviour problems in the schools, there was also a danger that if a teacher reported something was working really well, it could come back and haunt them at a later date (Rebecca).

An associated dynamic was also at work. In association with the various report back sessions, teachers responding negatively to IDEAS were positioning those reporting their successes as tall poppies, causing some discomfort. At the same time, they were positioning themselves, within their own group, as resistant to the learning. As the trial spread to schoolwide, it became difficult for them to report something positive in front of the staff.

> If one of them said, "OK I'm going to give it a go", it would be even harder now, because they've been so negative. I think it's just a negative spiral thing. (Rebecca).

The profile of the small group of 'resisters' was commented on by several teachers. All male, and mostly from one Department, they were described as 'feeding off each other' (Cassie) and exerting pressure on each other not to conform (Rebecca). Although small, the group was perceived to be quite powerful in terms of their influence on staff (Cassie). From the position members of this group had adopted, the merits of the pedagogical framework were no longer the issue. No matter how good the knowledge was, there was peer pressure not to support it.

> I think they're against it for the sake of it…its just like the children who dig their toes in and won't do it anyway. I don't think it's a reflection on the project…it might be a personality clash…but they're just not going to do it (Rebecca).

Others placed a different interpretation on why this group of men were resisting change. Comfortable with the job they are doing already, they may see it as extra work, which would not bring any benefit (Geoff, Jessie). They could also be taking the suggestion that they try something new as criticism of their work (Cassie) and simply not want to get involved (Geoff).

> They've established themselves as a certain teacher with a certain style and they've got into the mode of doing things a certain way (Cassie).

Relevance of the New Knowledge

Another factor which influenced some teachers' perceptions of the value of the pedagogical framework was the length of their teaching experience. Some experienced teachers, positively disposed towards the framework, had also developed and successfully used many other teaching strategies over time. This raised the possibility of previous experience impinging on the impact of the framework, as the new knowledge it represented had to be incorporated into complex existing schemata.

> …whereas if you have a young teacher that is just beginning their career might - just depend on this a lot more and then use that to go on and formulate their strategies (Jessie).

The young teachers who volunteered to be mentored did see the relevance of the new knowledge and were keen to work with it. Although keeping up with content remained a pressure, they wanted to be innovative and to expand their teaching

skills, though this was difficult when colleagues were teaching to the test in a very time efficient way. The young teachers also felt intimidated by some of the more experienced staff who they believed tried to cut holes in their enthusiasm, to really drag them down (Kylie, Tim). The insights they had gained from the concepts and questions were proving useful, students were responding positively, but there was no forum in the school where they could safely discuss this without appearing to be critical (Kylie).

> Especially as second year teachers…it's extremely difficult to speak up and make suggestions towards your superiors (Tim).

This was frustrating to the young teachers who wanted to be part of a team where everyone was free to make suggestions. They resented being positioned by some teachers as "young upstarts" and "go-getters", being told:

> …its just a lot of garbage, we've heard all these models come and go… it's just another one, coming and going, we don't need to hear about it (Kylie).

and having their ideas squashed, with:

> 'No, you have no idea, its not possible'…You get so excited…and you think, we can do this…I know there's implications in putting things into practice…(but) we all need not to have our passion squashed. We need to be able to talk about things and go lets make it a possibility. How can we work together to do this, rather than going Nah, nah…we can't do it (Kylie).

Infrastructural Problems

Another potential constraint on the spread of the learning arose from a perceived mismatch between the vision and existing structures in the school. The IDEAS Group clearly understood the links between the vision and the schoolwide pedagogy. Not all teachers, however, were necessarily making that connection (Cassie, Zoe, Geoff). The message of being a school for the twenty-first century was being contradicted by the 'traditional' use of space, time and resources (Trevor). Access to the computer laboratories was difficult for the junior classes (Cassie, Trevor) and the school was still working within a very 'regimented' timetable and with traditional class structures (Zoe, Joshua).

> …they're extremely traditional in the way they view the resource allocation…it's a very traditionally run school…and that I don't see any…flow on effect of using the concepts and questions (Zoe).

The knowledge created by the IDEAS Group appeared to have little impact on the work of the administration team (Cassie). Before his retirement at the end of 2000, the principal reported that he had used the concepts and questions to guide his writing of the Annual Operational Plan (AOP). While this sounded impressive (Zoe), the AOP was written in very general terms and had no direct link with any of the subject department plans (Geoff). No attempt appears to have been made to give the budget allocation process a whole-school focus, or to get Departments focusing on shared priorities in their planning and budgeting (Geoff).

Communication Between Administrators and Teachers

Some of the reluctance towards embracing the pedagogical framework arose from perceptions about the school administration and perceived communication problems between administrators and teachers. Willowbank's involvement in a range of innovative projects and initiatives has attracted attention within the State, raising the profile of the school in the education community. Among the teachers, there was a certain ambivalence about the publicity and awards received for school's innovative initiatives (Blake). While teachers involved were aware of particular activities, others may only hear about them through press reports (Blake). In addition, some people who were involved did not always get recognition for their contribution (Geoff).

There was a lingering perception that IDEAS was another project 'driven from the top' by Michelle with the support of the administration (Blake), to be superseded in due course by another initiative (Joshua). The resistance this caused was augmented by a more broadly based concern that the administration did not understand the worsening problem of student behaviour (Geoff), and had lost sight of what it was like in the classrooms (Rebecca). If teachers were not being supported at this basic level, why would they listen to other things the administration was saying (Blake). Anyone who perceived that IDEAS was being driven by one of the administration team, but did not respect that position, had little incentive to listen. Their cynicism was a powerful barrier to change:

> It is really disillusioning a lot of people about anything that comes from administration as being worthy of taking any notice of (Geoff).

5.5.4 The Perception of Change

Despite these dynamics, and perhaps not cognisant of all of them, at the end of 2000, Emma was satisfied with what had been achieved. She believed the ripple effect was occurring, that those people fearful of change were being supported, their learning scaffolded, by the trialing process. She was optimistic that generally teachers were comfortable with the vision, and embraced the concepts and questions:

> I'm not perceiving anybody who's saying this is ridiculous, no we don't want to do it. So there's an acceptance and an awareness. And I think the ripple is rippling (Emma).

In terms of the number of teachers involved and the degree of their involvement, members of the IDEAS Group believed they had achieved reasonable outcomes by the end of 2000:

> I think people are now as a whole, generally aware of the benefits of this and most people are on board and most people are positive (Cassie).

> There's definitely changed teaching practices as a result of people using the (vision) and the concepts and questions. There's professional dialogue occurring…there's much more analysis and reflection of teacher's own practices at an individual level…There's a confidence to risk-take…There's a sense of pride in ourselves as a school that was certainly lacking before…a lot of us always thought we were good teachers…but certainly we feel like we're a good school. We're more cohesive (Emma).

Emma believed that during 2000 more change had occurred than people realised. Many of the things that teachers were doing had been put into words (Geoff), and subconscious but important things about teaching and learning had been brought out into the open (Rebecca).

An important factor contributing to whatever learning had occurred was the absence of mandated change. The trails were all conducted in the context of choice (Geoff) and guided by sound pedagogical principals.

> The biggest key to this has been to take away the fear of failure. And we've done that by limiting the expectations to being involved at the level at which you're comfortable and offering support…It's about doing what…you have to do with kids isn't it? Let them work in teams, let

> them take risks, but make it supportive risk taking, share success stories, it's just what you do in your classroom (Emma).

Following any adjustments prompted by staff feedback, the IDEAS Group assumed that from 2001 the pedagogical framework would guide teaching and learning in the school.

> Our presumption is that, as of next year, that that's what we do at this school…So, we would be saying, whatever you're doing, use your framework …They're saying, OK we've trialed for two years. We believe that, if our teaching and learning is guided by this, we'll have improved student learning outcomes. Therefore, as a staff, we have a commitment to this…slowly and surely (Emma).

5.5.5 Emerging Understanding: My Perspective

This case offers insight into what happens when a group of teachers creates knowledge within a school and then seeks to implement it schoolwide. This is an unusual situation. Schools frequently receive knowledge created elsewhere (curriculum documents, for example) for implementation at school level. Such policies may be met with ambivalence for a range of reasons. They may be one of many, perhaps contradictory, systemic initiatives flowing in from outside. They may fail to take the particular school context into account or be perceived as driven by economic and not educational agendas. They may also be seen as undermining the professionalism of teachers for political reasons. Under these circumstances, teacher reluctance to implement this new but decontextualised knowledge may be understandable.

The situation at Willowbank was very different. The knowledge created focused on the improvement of student learning outcomes. It was contextualised, created by a group of teachers engaging in intense professional dialogue to meet the needs of their students. The meaning of this new knowledge was captured in their pedagogical framework: a future orientated vision and a shared pedagogy in the form of concepts of questions. The teachers then took the next crucial step – applying their learning to their practice with very encouraging results. Students responded positively and the commitment of the teachers grew. It had not been an easy process but the learning had been profound and the potential impact on the school was huge. This was an achievement of great significance.

The IDEAS Group had become a professional learning community, engaging in deep and critically reflective dialogue enriched by the diversity among members. They developed a strong cognitive system, based on shared language and shared meaning. The vision, concepts and questions were key artefacts that both recorded their emerging understandings and continued to guide their thinking, as they extended and refined the knowledge they had generated through trialing. Having worked through three phases of the knowledge creation spiral, they tried to spread their learning ontologically across the school, to have what they had created accepted as the knowledge that guided the organisation.

Phase two of this account, the spreading of the newly created knowledge across the school, is a very different story. A group of teachers with utter belief in what they had produced set out to share their learning. They had kept the staff informed and sought input at various junctures along the way but essentially owned the knowledge they now wished to share. Looked at from the broader staff perspective, however, here was something else to be implemented, something produced within the school, but not by them. They did not have ownership of the knowledge nor were they committed to its implementation.

Initial teacher reaction across the staff varied from interest to outright rejection. There is no doubt, however, that as the trials progressed learning did occur. The ripples did spread – the question is, to what degree? The knowledge created by the IDEAS Group was authentic and significant. Teachers who had trialed the pedagogical framework reported that at the time it had made a difference to their planning, their practice, their interaction with students, their expectations of students and their evaluation. The knowledge was contextualised and it could usefully enhance teacher practice. The teachers who appeared to have learned the most during the trials are those who wanted to be involved – the teachers who were sufficiently interested to volunteer for the first round of mentoring. Not even these teachers, however, were able to significantly tap into the shared understandings of the group or experience the commitment its members felt. Trialing the concepts and questions was a valuable professional experience, one which teachers could learn from, but it could not be compared to the effects of the experience of generating knowledge through deliberation.

Over time, through the various trials and because of the persistence of the group, teachers began to become more familiar with the concepts and questions. More interaction was occurring between Departments, more broadly based conversations were occurring about pedagogy, and teacher morale had improved. Teachers, including young teachers, had demonstrated their capacity to lead and the trials had been conducted in the spirit of collegiality and choice, not coercion. At the same time, factors within the school were interfering with the spread of the knowledge. Especially in the early stages, teachers had no way of knowing that IDEAS was not just another passing project taken on by the school administration. Resistance to innovation 'from the top' grew out of a range of factors: poor communication, personality clashes, perceived difference in priority, and the belief that teachers already doing a good job did not need to change their practice. These factors also contributed to the climate where experienced teachers publicly embracing the new knowledge could be uncomfortably positioned as 'tall poppies' and young teachers as 'upstarts'. It did not matter how good the pedagogical framework was, there were factors operating to constrain its schoolwide implementation.

Although all working at Willowbank and operating within the same general school culture, individuals had different perspectives on events, based on their own values, background, experiences and patterns of social interaction. Those teachers interested in sharing the learning of the group volunteered to be mentored. They became, in effect, peripheral participants in a community of practice. They were being given the opportunity to extend their professional knowledge and competencies by trialing the schoolwide pedagogy, supported by a member of the IDEAS community of practice. As the trials progressed most of the staff indicated a willingness at least to try the pedagogical framework. Mostly, they approached this as something that might be added to their teaching repertoire – but without moving out of their existing community of practice. Finally, a small group of male teachers were unwilling to engage at all, either believing it offered them nothing or that their professional identity would be compromised in some way if they recognised the value of the knowledge that had been produced. Perhaps gender dynamics may have influenced their reaction. This group forms a discourse community that not only rejects the learning of the IDEAS Group

regardless of its value, but also, because of the social influence they exert, makes it difficult for other teachers to stand up and report positively on the success of their trials. This could explain why estimates of the number of teachers 'on board' varied so widely. The answer probably depended on who was asking the question. The view of IDEAS from the centre was very different to the view from the margins and there were some risks involved for teachers on the middle ground.

While some new patterns of interaction were being created through mentoring and the various trials, these were variable. There was also some extension of the shared communicative environment developed by the IDEAS Group, through the peripheral participation of the mentees. Another interesting dynamic was emerging. As the IDEAS Group deliberated and learned together, sharing their experiences, they were reinforcing patterns of responses and interaction that reflected their learning. The same thing was happening with the group who had placed themselves on the margins – only different patterns of responses and interaction were being made. This was having the effect of moving the groups further apart. The large 'middle group' of teachers were influenced by both - to different degrees depending on their own patterns of social relationships and how they viewed the knowledge created by the IDEAS Group in relation to both their own practical knowledge and the existing organisational knowledge at Willowbank.

There is a dynamic interplay between individual cognition and systems of shared cognition. Individuals both contribute to the shared meanings and draw on them to develop their own individual competencies. This was clearly demonstrated in the way that members of the IDEAS Group generated knowledge, developed their pedagogical framework and then used this to inform their individual practice. Learnings were reported back to the group, enriching the shared schema. However, the results of the trials were also being reported back to the larger staff group – who had not been part of this knowledge creation spiral and who were not part of the system of shared cognition. Divorced from the system of shared meaning, the collective learning captured in the pedagogical framework lost some of its meaning. The teachers who chose to be mentored were able to partially tap into the shared schema of the group. For those in the outer circles (the ripples

farthest from the centre) there had been little or no cognitive engagement and so little meaning was attached to the artefacts. They were being asked to implement something they had no part in creating and no stake in.

While it is possible for the knowledge generated by the IDEAS Group to be accepted ultimately as 'justified true belief' across the school, all participants need to be able to contribute to the systems of meaning unpinning the framework – or have the opportunity to add their own value to this knowledge. More across the school commitment could perhaps be generated by incorporating this learning into other initiatives, so that more teachers could engage in knowledge creating deliberation. The New Basics trial was seen as one clear possibility, providing the opportunity for more teachers to carry forward the knowledge created by the IDEAS Group – increasing their feelings of ownership and commitment though their participation. Such ongoing engagement could also increase the experiences shared by the teachers – grounded in the pedagogical framework – reinforcing their learning through strengthening new patterns of interaction.

Clearly the potential exists for further development of the knowledge created by the IDEAS Group and spread (albeit variably) across the school. The results of the readministered diagnostic inventory surveys, noted in Chapter 4, demonstrate the widespread perception that significant change had occurred. The new data indicated that most teachers did believe the school was guided by an inspirational vision and that agreement had been developed on what constituted excellence in teaching in the school. While a small group of teachers continued to reject the pedagogical framework, the knowledge that had been created had made a difference to the school.

5.6 Conclusion

Chapter 5 has built on the stories told in Chapter 4, focusing specifically on knowledge creation in each of the settings. Firstly, consideration was given to the significant impact of context on the nature and meaning of the knowledge created in each school. This led into detailed consideration and analysis of knowledge creation in each case and my own interpretation of the process at work. Care has been taken in both Chapter 4 and Chapter 5 to recognise the individual value and

uniqueness of the three cases. Each school has been considered in detail but always as separate instances of knowledge creation in action. In Chapter 6 the focus changes and attention turns to considering what light a cross-case comparison may shed on the knowledge creation processes at work.

Chapter 6: Conclusions

6.1 Overview

This inquiry has investigated the dynamics, implications and effects of knowledge creation in three schools engaged in a process of whole-school renewal. Chapter 4 told the 'story' of the schools, constructed from the perspectives of the teachers against a background of their participation in IDEAS. These accounts were provided to contextualise the specific exploration of knowledge creation at each school which followed in Chapter 5. The three cases have been explored in depth, their uniqueness recognised. My emerging understandings of the knowledge creation and learning processes, in relation to each, have been presented. The first stage of the analysis is therefore complete and it is now opportune to consider the three cases collectively, exploring insights that emerge from cross-case comparisons.

The structure for this is provided by the research questions:

- Through what processes can professional learning communities be said to 'create' new knowledge?
- What kinds of individual and organisational learning support the whole-school renewal effort?
- What are the factors that encourage or constrain the creation of knowledge and its translation into action?

These questions are addressed in turn, followed by consideration of how the findings of this inquiry may be related to the literature. Attention is also given to the importance of this research and how it may be further developed. Finally, a reflection on its significance is offered.

6.2 The Research Questions

6.2.1 Through what processes can professional learning communities be said to 'create' new knowledge?

A number of findings, emerging from a cross-case comparison, indicate how teachers may work together to create contextualised knowledge. These processes are summarised in Table 10, then given more detailed consideration.

Table 10: A Summary of the Processes Used in Knowledge Creation

Making Meaning: Collaboratively and purposefully making personal meaning of contextualised data in an environment which supports the sharing of tacit knowledge.
Developing the Pedagogical Framework: Sharing beliefs, values and mental models to develop a vision and schoolwide pedagogy, underpinned by shared meaning and commitment. The vision and schoolwide pedagogy are documentary artefacts.
Using the Artefacts: Using the documentary artefacts developed • to capture and record the systems of shared meaning underpinning the knowledge that has been created (and the learning this represents); • to guide action and further thought.
Building New Patterns of Interaction: Building and reinforcing new relationships and patterns of interaction between teachers - creating the potential for change. This may be beyond the anticipated change.
Heightened Engagement: Ongoing participation in knowledge creation and implementation activities - but allowing for different levels of participation. Active participation brings increased motivation and an enhanced sense of professional identity.
Embedding the Knowledge: Spreading the new knowledge across the school and combining it with existing organisational knowledge.

Across the three cases, these processes have been significant in the creation of new knowledge. The list offers insights into the dynamics of knowledge creation, drawing more generalised understandings from the experiences of the three schools. These processes are now considered in more detail.

Making Meaning:

Collaboratively and purposefully making personal meaning of contextualised data in an environment which supports the sharing of tacit knowledge.

IDEAS has provided the professional communities of the three schools with a vehicle for the creation of contextualised professional knowledge. For most teachers, engagement with the knowledge creation process began as they collectively analysed the diagnostic inventory data. This collaborative activity

involved teachers engaging in highly contextualised meaning-making as they shared their understandings of patterns emerging from the data.

The IDEAS principles of practice are significant here as they establish parameters that support such interaction. There is a clear focus on the work of teachers, on successful practice and on the importance of professional learning. These are reinforced by the expectation that teachers will take collective responsibility for the process, and not blame individuals for any problems identified. In such an environment, this initial sharing was not threatening to teachers, even where the data indicated major areas of concern. The neutrality of the data allowed previously undiscussable issues to be brought out into the open. There was affirmation too, in the successes identified by the various stakeholder groups.

At both Willowbank and Holy Cross, the data revealed some major concerns, raising issues that had not previously been recognised or publicly discussed. In both cases, a defensive response was averted by the way they were perceived within the data as a whole. In both cases the sharing of tacit knowledge successfully proceeded – although at Willowbank this primarily involved the IDEAS Group and at Holy Cross the sharing proved emotionally difficult, over time, for those teachers whose lack of self-efficacy left them feeling vulnerable.

Developing the Pedagogical Framework:

Sharing beliefs, values and mental models to develop a vision and schoolwide pedagogy, underpinned by shared meaning and commitment. The vision and schoolwide pedagogy are documentary artefacts.

In the *ideas* process, once the successes and challenges have been identified and understandings of the current state of school operation shared (from teacher, parent and student perspectives), attention turns to envisioning a desired future for the school. This collective exploration of aspirations requires the sharing of tacit knowledge – particularly values, beliefs and mental models. It is challenging for teachers to try and capture this highly elusive aspect of their tacit knowledge. The articulation of a desired future requires imagination and the negotiation of shared purpose. Engaging in ongoing professional conversation, individuals bring their different perspectives and contextualised understandings to the group. Through sharing and negotiation, they produce a brief vision statement capturing the

essence of their desired future for the school, something memorable that inspires them. It is the system of shared understanding, developed through deliberation, that gives meaning to this explicit statement of the vision. The words themselves have little to say if taken away from their context and the shared understandings they represent.

Considerable sharing of both the practical and cognitive dimensions of tacit knowledge is required for the development of the schoolwide pedagogy. While likely to be informed by authoritative theory (e.g. systemic pedagogical policy or learning theories) the schoolwide pedagogy is grounded in teacher agreement on successful pedagogy in the context of their school. The principles may be broad but are underpinned by a system of shared meaning developed over time though deliberation and negotiation. The meaning systems underpinning both the vision and the schoolwide pedagogy represent new contextualised knowledge socially constructed through the sharing of tacit knowledge.

At Willowbank, the IDEAS Group engaged in this process with significant cognitive and emotional commitment. They shared, deliberated and negotiated meaning – eventually agreeing on a vision that captured the essence of what they had developed as a diverse group coming together to forge understanding. Through perseverance, they captured the knowledge they had created in their vision, concepts and questions – a pedagogical framework which was packed with meaning for them and which informed their practice.

At Holy Cross, the sharing of tacit knowledge was a new experience and the emotional climate did not support the kind of robust discussions that characterised IDEAS Group meetings at Willowbank. While more tentative, as a result of sharing their tacit knowledge, the teachers at Holy Cross did make a significant contribution to the development of the vision statement - though some values and beliefs were virtually ‘givens’, they were so deeply embedded in the Lutheran ethos. While capable of multiple readings, allowing individuals to focus on the aspects closest to their own beliefs, the vision did represent the collective aspirations of the group and had meaning for them. The tensions between the different value systems, as experienced in this setting, were to emerge later in the process.

At Rainbow Terrace, the situation was different because the school already had a vision within the Total Systems Model. The teachers were not permitted to envision their desired future until quite late in the process after the principal compromised, agreeing they could develop a vision for their schoolwide pedagogy. The teachers did begin a process of sharing tacit knowledge, however, by moving from the diagnostic inventory data straight into an exploration of their personal pedagogies. Teachers made their beliefs about their pedagogy explicit in a whole range of areas and then shared this information, making comparisons and drawing out commonalities. The schoolwide pedagogy was developed through ongoing discussion and synthesis of the values and beliefs expressed in these statements of personal pedagogy. It is not possible to judge how much the teachers' tacit knowledge had been altered by the experiences they had shared while the Total Systems Model was under construction or how much their behaviour was influenced by the perceived expectations of the principal. Some teachers clearly shared the values and beliefs expressed and modelled by the principal, others appeared to be compliant. However, it could be argued that because of the previous culture building activities and clear expectations of the principal, a shared vision existed even though it had not been made explicit.

Using the Documentary Artefacts:

- to capture and record the systems of shared meaning underpinning the knowledge that has been created (and the learning this represents);
- to guide action and further thought.

All three of the schools used IDEAS to enter into the knowledge creation process. In each case, through the sharing of their tacit knowledge, teachers were able to develop explicit statements of vision and schoolwide pedagogy. These explicit statements may be described as artefacts grounded in and supporting the systems of shared cognition developed through ongoing discussion.

The development of these artefacts is important for a number of reasons:

- As the highly contextualised 'products' of an ongoing knowledge creation process they capture the knowledge that has been created as a result of sharing and deliberation.

- They are a visible representation of a complex system of shared meaning which resides largely in the meanings and understandings held-in-common by the group. They are filled with meaning for those who created them.

- Emerging from successful practice, they serve as a guide, informing teacher action – and as the basis for further development as they are trialed and refined. The link to implementation is not always straightforward, however.

- Through mentoring, professional conversations, participation in implementation and other means they provide an entry point for the induction of new teachers into the earlier learning of the group – providing a starting point for their contextualised personal meaning-making.

At Holy Cross, both a vision statement and a schoolwide pedagogy were developed though sharing and discussion. However, as the schoolwide pedagogy did not represent useable knowledge, the teachers developed a pedagogical plan that bypassed its implementation. Instead they focused on issues they had not previously had the opportunity to address collectively. For these teachers the link to action related to developing ways of working together outside the classroom. At Willowbank, the link between the vision, concepts and questions and changing classroom practice was strong for the IDEAS Group. It was more tenuous for teachers who had not been involved in producing this pedagogical framework. At Rainbow Terrace, the lengthy schoolwide pedagogy with its descriptions of classroom practice was a way of making explicit the pedagogical approaches advocated by the principal and embedded in the Total Systems Model. The list of beliefs about teaching and learning, illustrated with examples, provided the link to action.

Building New Patterns of Interaction:

Building and reinforcing new relationships and patterns of interaction between teachers - creating the potential for change. This may be beyond anticipated change.

The experiences of the three case study school indicate that as they engage in the *ideas* process, teachers begin working together in new ways, initiating new

connections and patterns of interaction. IDEAS provides a structure and a purpose for teachers to engage in professional conversations, sharing their values, beliefs and mental models. This opens up new opportunities for action built on shared understandings and common purpose. The new knowledge created by teachers becomes embedded in new relationships and patterns of interaction between them.

The development of a vision and schoolwide pedagogy takes teachers beyond the sharing of practical knowledge about 'what works' into a questioning of practice and the assumptions that underpin it. Such sharing provides the opportunity for gaining deeper insight into the professional thoughts and understandings of colleagues. It opens the possibility of making new and different connections between teachers, as understandings are shared and examined. This kind of professional relationship goes well beyond the sharing of resources and practical suggestions, and provides a foundation for different ways of working.

In the process of developing their vision, concepts and questions, the IDEAS Group at Willowbank interrogated their own and each other's beliefs about pedagogy. At the same time, they began to make pedagogical connections that transcended the subject taught and to value what teachers from different discipline areas could learn from each other about practice. The group also developed new ways of working with the rest of the staff – providing pedagogical leadership through mentoring and the progressive trialing of the pedagogical framework. At Rainbow Terrace, the sharing of personal pedagogies led to new professional links between teachers and new collaborative action. The positive social climate supported the move into deepening professional conversations and the formation of dialogue groups – themselves the basis for further action. The IDEAS Team and school facilitators forged new relationships with each other and with the other teachers as they worked through the *ideas* process with the staff. At Holy Cross, the establishment of new patterns of interaction between teachers and increased recognition of the value of professional knowledge were perhaps the most significant short term achievements of *Into the Future.* By forming out-of-classroom relationships and sharing their knowledge, teachers were beginning to bring about change in some of the conditions that had hindered their knowledge creation work.

As Holy Cross illustrates, depending on contextual factors, there may be a significant difference between what a school sets out to achieve and what it actually does achieve. New ways of working may bring unexpected potentials for change. At Rainbow Terrace, the knowledge created through engagement in IDEAS and the growing capacity of the IDEAS Team for pedagogical leadership was challenging the parameters of the Total Systems Model in ways not foreseen by the principal. At Willowbank, membership of the IDEAS Group provided the opportunity for young classroom teachers to show their leadership potential – and to successfully take on pedagogical leadership responsibilities. The mentoring of experienced teachers by young teachers also indicated the emergence of a new type of professional relationship – with a recognition that legitimate teacher knowledge did not necessarily rest on length of teacher experience.

Heightened Engagement:

Ongoing participation in knowledge creation and implementation activities – but allowing for different levels of participation. Active participation brings increased motivation and an enhanced sense of professional identity.

Findings from the three schools indicate the importance of teachers being cognitively engaged in the knowledge creation process. It is clear, however, that given the diversity of staff in each school, this does not occur evenly. Different teachers vary in their perception of the relevance of the process, and of the knowledge created, to their work and, therefore, vary in their level of engagement. To become actively engaged, teachers need to see a link between their perceptions of successful practice and the cognitions being shared by the group. If they perceive the knowledge being created has little relevance for them, they are reluctant to engage. Giving teachers ongoing opportunities to make connections – to consider their own beliefs and experiences in light of what was being discussed – is an important part of building engagement in knowledge creation processes. This indicates the importance of repeatedly sharing knowledge creation and implementation activities, to reinforce the particular connections and patterns of relationships between teachers, giving space for individual responses to collaborative activity and allowing change to occur over time. The experience at Willowbank provides a good example of different levels of teacher engagement in the *ideas* process. However, the IDEAS Group found ways to repeatedly engage

the other teachers through the sharing and implementation of the pedagogical framework. This was achieved through mentoring and the series of trials and report back sessions which culminated in a school-wide trial. While some teachers remained unconvinced and disengaged others were beginning to see the benefits and were more prepared to incorporate aspects of the framework into their practice.

At Holy Cross, the socio-emotional climate of the school had a significant impact on levels of cognitive engagement. Some teachers felt unable to risk participation while others welcomed the opportunity to work more collaboratively. While the staff as a whole was not operating as a professional learning community, teachers had moved beyond the total isolation of the classroom. At Holy Cross the teachers who were confident of their professional knowledge and willing to engage in professional conversations displayed higher levels of cognitive engagement in the school renewal process than their less confident colleagues. They were motivated by having the opportunity to take some ownership of issues and were developing a sense of collegial professional identity. At both Willowbank and Rainbow Terrace there were groups of teachers whose motivation for engaging with *ideas* intensified as they worked with the process – their identity as collaborative professionals enhanced as a result. The IDEAS School Management Teams at both Willowbank and Rainbow Terrace provide particularly good examples of this process. Through their heightened participation in the *ideas* process both these groups became professional learning communities in their own right.

The IDEAS Team at Rainbow Terrace had the time, space and the motivation to develop their connectedness, coming together with a purpose and engaging in probing professional conversations. The challenge of managing the process deepened their learning as they engaged with the concepts of IDEAS, negotiating shared understandings. It was the IDEAS Team that ultimately was able to distil the long and complex pedagogical framework into a series of principles they believed they could work with, and to convince the principal of the need to develop a school vision.

The parallel with Willowbank is interesting. At Willowbank, the IDEAS Group were clearly operating at a high level as a professional learning community. The

connections they forged through the intensity of their interaction transformed their professional relationships, enhancing their sense of identity, both individually and as a group.

Embedding the Knowledge:
Spreading the new knowledge across the school and combining it with existing organisational knowledge.

The findings indicate that each school was able to create new contextualised knowledge through their engagement with IDEAS. It is also clear that context played a significant role in determining the type of knowledge created and its translation into action. A particularly significant contextual factor is how the new knowledge fits with existing organisational knowledge, particularly with what might be described as the official knowledge or dominant managerial paradigm.

At Holy Cross, the official management paradigm was strongly influenced by the school's Lutheran purpose and heritage. In the development of the vision and schoolwide pedagogy there was an ongoing tension between the school as a Lutheran institution and the school as an educationally successful institution. While this was addressed to some degree by reflecting both sets of values in the artefacts produced, this tended to hide the tensions between Lutheran based knowledge and teacher professional knowledge. The *Into the Future* process had the effect of giving greater recognition to the value of teacher professional knowledge and introducing more collaborative ways of working. It was to a degree secularising the organisational knowledge of the school. Not all teachers felt able to engage in collaborative activity – but those who embraced the opportunity began to work with their colleagues, drawing on their professional knowledge to take some collective responsibility for the pedagogical and behaviour management challenges they faced. There was a new sense of ownership emerging – and a greater willingness to acknowledge the 'reality' of organisational life.

At Rainbow Terrace, the knowledge created through IDEAS had an interesting and complex relationship with the official organisational knowledge. The schoolwide pedagogy was intentionally developed to enhance the official knowledge made explicit in the Total Systems Model, and so did not have to be

justified at an organisational level. Other knowledge, such as the vision, was turned back however because the dominant managerial mindset would not accept it as valid. The *ideas* process had created space for new patterns of interaction, however, and for the development of shared understandings outside the dominant cognitive system. Although the dominant organisational paradigm was very strong, IDEAS was an alternative paradigm, and opened up some space for contesting meaning. This success of this, while limited, is demonstrated in the development of both a shared vision for the school and development of twelve succinct principles from the lengthy pedagogical framework.

At Willowbank there was no dominant organisational knowledge paradigm to turn back the knowledge created by the IDEAS Group. In the absence of agreement on what constituted excellence in teaching and learning, however, teachers had the professional freedom to develop their personal pedagogical styles. Some, happy with the way they taught, could see no reason to change. New knowledge continually flows into schools often making little impact on teachers. At Willowbank, the new knowledge being presented to the staff had been created in the school – but not by the broader teaching staff who were being asked to accept it as knowledge for the organisation as a whole. The IDEAS Group did experience some success in sharing their framework. Their experiences indicate, however, that knowledge created within the school will not necessarily be accepted as organisational knowledge.

Two Perspectives on Knowledge Creation Processes

The processes used in knowledge creation have been identified and illustrated by comparing the experiences of the case-study schools as they engage with IDEAS. Two perspectives emerge from these comparisons:

- a view of the how the knowledge creation processes identified from the cross-case comparisons may be functioning within the five phases of the *ideas* process; and

- a broader view of how the knowledge creation processes emerging from the three individual case studies and comparisons between them.

Perspective 1: Knowledge Creation Processes and *ideas*

As detailed in Chapter 1, the *ideas* process is one of the three essential components of the IDEAS Project. It is an implementation strategy with five phases: initiating, discovering, envisioning, actioning and sustaining. As each of the case study schools has created contextualised professional knowledge, it is clear that participation in the IDEAS school renewal project involves knowledge creation activity.

The knowledge creation processes, summarised in Table 10, emerged from a cross-case comparison of the three case study schools – all participating in IDEAS. A fuller picture of the dynamics of knowledge creation in IDEAS begins to emerge, however, when these knowledge creation processes are considered in conjunction with the *ideas* process. This is tentatively presented in Table 11, where the knowledge creation processes identified from cross-case comparison have been situated within the phases of *ideas.*

The combination of the two sets of processes raises some interesting points for consideration. When viewed together, there are indications:

- that new patterns of interaction beginning to emerge as early as the initiating phase of the *ideas* process, will be reinforced and extended in the subsequent phases;

- that opportunity for meaningful engagement exists in different phases of *ideas* – allowing teachers to become active participants at different times as the process unfolds;

- that the sharing of tacit knowledge in the discovering phase provides a starting point for developing shared understandings. These are extended and deepened in subsequent phases of *ideas.*

Table 11 is generalised and therefore reflects (rather than records) the experiences of the individual schools. When these generalisations are related back to the more specific experiences of the three schools, it becomes very clear that knowledge creation within IDEAS is not a linear process – new knowledge may be generated at many different junctures.

Table 11: The Processes of Knowledge Creation within the *ideas* Process

The implementation process of the IDEAS Project – known as *ideas* – has five phases: initiating, discovering, envisioning, actioning and sustaining. This table provides some tentative insight into the ways the knowledge creation processes identified from the cross-case comparisons, work within *ideas.*

initiating:

- new patterns of interaction between teachers may begin to emerge in the establishment of the IDEAS School Management Team
- active engagement with *ideas* begins for the school-based facilitators and IDEAS School Management Team members

discovering:

- collaboratively and purposefully, teachers engage in making meaning of the diagnostic inventory data - with a focus on successful practice
- tacit knowledge is shared during the interpretation of this data
- teachers develop shared understandings through their professional conversations
- new patterns of interaction between teachers begin to develop

envisioning*:*

- tacit knowledge (beliefs, values, and mental models) is shared through probing professional conversations
- the emerging understandings are used to develop agreement on a desired future for the school and on shared principles of pedagogy - underpinned by shared meaning and commitment
- these systems of shared meaning (and the learning they represent) are captured and recorded in artefacts (vision, schoolwide pedagogy).
- new patterns of interaction between staff continue to develop – though levels of participation vary
- the ongoing engagement in *ideas* is motivating – for facilitator and IDEAS School Management Team Members and other active participants

actioning*:*

- actively engaged teachers begin trialing the knowledge they have created and recorded (in the documentary artefacts) – relating it to practice.
- their actions reinforce the new patterns of professional interaction, strengthening connections between them
- while the IDEAS School Management Team (and like-minded others) encourage active engagement, levels of participation in actioning may vary
- there is heightened engagement and increasing sense of professional identity for those engaged

sustaining

- progress is evaluated and new data may be collected
- the artefacts are reviewed and refined – and provide a basis for further thought
- action to embed the new knowledge into school practice continues
- patterns of interactions between teachers are reinforced and collaborative professional relationships sustained

Note: During the period of the research, only Willowbank entered the sustaining phase, collecting new diagnostic inventory data to evaluate their progress - though they were still working to spread the knowledge they had created across the school, to embed the pedagogical framework into school-wide practice. The other two schools were still engaged in earlier phases. The relationship between envisioning, actioning and sustaining was complicated at Rainbow Terrace by the interplay between IDEAS and the Total Systems Model.

At Holy Cross, significant new knowledge was created during the actioning phase of the Pedagogical Plan, as teachers re-imaged their professional roles. At Rainbow Terrace, the teachers quickly moved into the development of a schoolwide pedagogy, building shared language and shared understandings. Strong teacher pedagogical leadership emerged over time as the IDEAS Team developed new professional relationships and began to question the existing managerial paradigm. At Willowbank, the situation was complex. After some initial schoolwide engagement in the initiating and discovery phases of *ideas,* the IDEAS Group took over for the envisioning phase, creating the pedagogical framework. This complicated the actioning and sustaining phases – as the knowledge created had to be shared before it could be actioned. It had to be accepted as organisational knowledge before it could be sustained. In effect, while the IDEAS Group were offering some opportunity to continue developing the knowledge through trialing and report back – an additional dimension of knowledge management had also been introduced.

Perspective 2: Knowledge Creation Processes: A Broader View

One of the challenges of this inquiry has been to maintain three separate case studies and then make cross-case comparisons without losing sight of the individual cases. This approach, however, has the benefit of allowing patterns to emerge from rather than be imposed on the data. Perspective 2 takes a broader view of the knowledge creation processes – looking beyond the school renewal processes of IDEAS to see what other conclusions may be formulated.

The thumbnail sketches (Tables 7-9: Ch.5) identifying the nature of the knowledge created in each school provide a good starting point. These tables consider motivation, context, process, impact and the nature of the knowledge created in each case. By extrapolating from the experiences of individual schools, some generalisation is possible.

Using IDEAS, each school took a common approach to school renewal, though the purpose for participation varied from case to case. Holy Cross was a school in decline looking for a way of addressing its problems. At Rainbow Terrace, the motivation was the enhancement of existing school improvement efforts, while

teachers at Willowbank wanted to improve the school through enlightened change. In each case, there was an urge to act which grew out of their particular circumstances.

The purpose for participating in IDEAS varied according to context. Similarly, the way the *ideas* process was enacted varied considerably, depending on the particular school. In each case, contextual factors shaped what was possible. Drawing from the three cases, the following key contextual variables have been identified:

- social relationships (particularly trust and support);
- emotional climate (teacher morale, feelings of efficacy);
- administrator leadership and relations of power;
- coherence of school operation;
- image of the professional teacher (and confidence to re-image);
- match between official reality and lived reality (and awareness of this);
- the guiding theory of the school.

The particular configuration of this complex set of variables strongly influenced the way that IDEAS was experienced in each school, the particular way the *ideas* process unfolded and what was achieved as a result. In each setting, however, the teachers, or a significant group of teachers, actively engaged with IDEAS as a means of improving the school. In each case, as the teachers moved into the knowledge creation processes, new patterns of interaction began to create space for change. This had a liberating effect for teachers, and the changes occurring as a result could not be easily predicted. To different degrees, depending on contextual factors, space was opened up for teachers to question current practices, take pedagogical leadership roles, initiate professional interaction and bring about change. Teachers were able to use their knowledge to collectively create organisational knowledge, and to reconceptualise their professional practice.

This opening up of liberating space for teachers had an unlooked for effect. In each of the schools a dominant and highly influential theme began to emerge from

the dynamic interaction between the *ideas* process and powerful contextual factors - reflecting structures or tensions deep within the school. The theme, which came to the surface over time, was not obvious or stated – but in each of the schools related to competing paradigms:

- at Holy Cross, there were competing value systems – the Lutheran teacher and the (generic) professional teacher;
- at Rainbow Terrace there were competing systems of school renewal – the managerial paradigm and the teacher led IDEAS paradigm;
- at Willowbank there were competing views of teacher professionalism – the individual professional and the collaborative professional.

In each school, new knowledge was created and captured in documentary artefacts. In each case, these artefacts were clearly grounded in school context. At a deeper level, however, the nature of the knowledge created was also influenced by the emergence of these competing paradigms. In this way, context and process interact at different levels - in ways not necessarily easy to identify - to influence the nature of the knowledge created.

The kinds of knowledge created at individual school level related very specifically to the context of that school and the competing paradigm that emerged. It is possible to tentatively take a broader view, however, and, from the three cases, identify some common elements in the nature of the knowledge created. These elements were displayed to different degrees by the individual schools, depending on their particular context:

- challenging the dominant paradigm, then providing a means of working towards integration;
- developing new patterns of professional relationships and professional activity;
- increasing inter-relatedness among teachers, developing or enriching the communicative environment;

- increasing capacity for teacher pedagogical leadership;
- re-imaging teacher professionalism – new conceptualisations of purpose, pedagogy and practice.

This broad view of knowledge creation processes is summarised in Table 12.

Table 12: Knowledge Creation Processes: A Broader View

Sense of purpose: The desire to improve the school motivates participation in school renewal processes.

Impact of contextual variables: Key social**,** emotional**,** cognitive and structural variables in school context influence what is possible.

Engagement with IDEAS: teachers engage with IDEAS as a means of improving the school. They develop systems of shared meaning – captured in documentary artefacts and implemented

Liberating spaces: New spaces open up for teachers to question existing practice, exercise pedagogical leadership, initiate professional interaction and change - collaboratively creating knowledge and reconceptualising their practice.

Emergence of dominant themes: teachers' use of liberating spaces allows a deep-seated organisational theme to emerge relating to competing paradigms or competing value systems.

Construction of new knowledge: the nature of the knowledge created begins to take shape. Five dimensions can be identified but are displayed to varying degrees depending on context:

- challenges to the dominant paradigm – then providing means of working towards integration;
- development of new patterns of professional relationships and professional activity;
- increased inter-relatedness among teachers, developing or enriching the communicative environment;
- increased capacity for teacher pedagogical leadership;
- re-imaging of teacher professionalism – development of new conceptualisations of purpose, pedagogy and practice.

It is clear that while schools had different reasons for participating in IDEAS, engagement in the *ideas* process created space for teacher action. While the sample is small, some tentative observations may be made:

- in each case, a tension emerged between an existing paradigm and new, emerging paradigm;
- in each case, though not necessarily intentionally, through their engagement in *ideas,* teachers were working towards a resolution of these tensions;
- in each case, new patterns of relationships between teachers were evident, and teachers demonstrated their capacity for pedagogical leadership;

- overall, though in their different contexts and to different degrees, teachers were reconceptualising what they understood by teacher professionalism.

6.2.2 What kinds of individual and organisational learning support the whole-school renewal effort?

To a significant degree, answers to this question are embedded in the above discussion on knowledge creation processes. However, drawing on all three cases and taking this question as the specific focus, a number of insights emerge from the findings. These may be summarised as follows:

The learning that supports whole-school renewal:

- allows for individual responses and provides a good deal of opportunity for shared experience – so shared meanings can be developed and new patterns of connections created;
- builds connections between the schema of individuals – valuing diversity and the contributions of individuals;
- allows people to progress at different rates and to be drawn in over time;
- is linked to action. There is little point in saying that new knowledge has been created if it has no impact on practice. Practice can be classroom practice or it can be out of the classroom professional practice.

The experiences of the schools indicate that the professional knowledge of individuals is enhanced when practical or tacit knowledge is shared, discussed, measured against and combined with other knowledge, then transposed into action. This sharing of knowledge through professional conversations and joint action enhances the practical knowledge of the individuals and forms the basis for expanding the knowledge of the group. Over time, the group establishes more and more points of connection, building a system of shared cognitions which the group draws on to accomplish its tasks.

Within IDEAS, the knowledge created in each school is distributed among members of the group and captured in statements of vision and schoolwide pedagogy, intended to guide classroom practice. These artefacts become part of the cognitive surrounds, both reflecting the learning of the group and acting as vehicles for further thought. Thus teachers' knowledge is enhanced both by the collaborative process of knowledge creation and by the actions taken as a result.

Teachers negotiate the knowledge they share through processes of deliberation. Their shared knowledge is informed by their individual knowledge bases – including both tacit and explicit knowledge. Through their sharing and negotiation of meaning, teachers develop a pool of understandings which enriches their own knowledge and which they can individually draw from to inform their interactions and their practice. Teachers do not have to understand or believe all the same things to move forward collectively. Willowbank provides a good example of this where the pedagogical framework represents what the group knows but is then being interpreted individually by IDEAS Group members and those involved in the series of trials. It is interesting that those with the greatest involvement in the process of creating this knowledge, experienced the greatest impact on their practice. For others, it was interesting and useful, but something to be accommodated within existing professional paradigms.

At Holy Cross, it was not safe to share knowledge bases for fear of exposure. The teachers who wanted to share their knowledge were viewed with a mixture of suspicion and derision. Initially at least, these factors severely weakened the interplay between the individual and the group cognition. At Rainbow Terrace the situation was very different. The strongly supportive socio-emotional environment and the shared responsibility for students had fostered the sharing of knowledge on an informal basis. Teachers approached each other for advice and assistance and offered their support to others. This was formalised through IDEAS which built on the existing dynamics, providing the time and space for purposeful interaction. It is clear that school context plays a key role in determining the dynamics of individual and group learning in a school.

At Willowbank, there was a strong link between individual and group learning within the IDEAS Group. There, the challenge was to spread the learning across the school. This was not a straightforward process. The metaphor of concentric circles is useful – for the core group the learning grew out of the development and implementation of the knowledge they had created. The deliberation, the cognitive engagement, the clear links to practice through trialing were all reinforcing their learning both individually and collectively. As the circles moved further from the centre, however, and teachers were more peripherally involved,

these links were progressively weakened. Some learning occurred through mentoring (as teachers established cognitive connections through discussion and made links to practice) and, for some, this was reinforced through trialing (a direct link to practice). For those not involved in the creation of the knowledge or the mentoring and who could see little relevance in the knowledge created – there was little or no cognitive engagement and therefore little or no learning.

6.2.3 What are the factors that encourage and constrain the creation of knowledge and its translation into action?

A number of factors encouraging and constraining the creation and implementation of knowledge can be identified from a cross-case comparison of data from the three schools. The enabling and constraining factors that emerge from the findings are leadership; school structures and coherence in school operation; facing reality; sharing tacit knowledge; good communication; positive social and emotional climate; and space for knowledge creation. These are considered in turn.

Leadership

The notion of parallel leadership is one of the key components of IDEAS. The findings indicate that this is an important concept in relation to knowledge creation. The experiences of Willowbank, Rainbow Terrace and (to some extent) Holy Cross indicate that teachers have a significant pedagogical leadership role to play in the knowledge creation process. Success also depends on the principal (administrator leader) taking on a strategic and enabling leadership role. This occurred at Willowbank with the deputy principal/facilitator taking on the administrator leadership role. The leadership at Rainbow Terrace was clearly strategic and enabling, within defined parameters. At Holy Cross, the principal was reluctant to take on a strategic leadership role, and while several teachers demonstrated their capacity for pedagogical leadership, there was little indication of enabling leadership to support this.

At Willowbank and Rainbow Terrace, middle managers played a ‘bridging’ role as teachers with an understanding of the realities of the classroom and insight into whole-school operation. At Willowbank, heads of department provided this

important connection, while at Rainbow Terrace it was the deputy principal. At Holy Cross the conditions did not exist to support middle managers.

School structures and coherence in school operation

School structures and the coherence of school operation have the potential to either encourage or constrain knowledge creation. At Holy Cross, school structures lacked coherence. The resulting fragmentation and lack of consistency was confusing and stressful for teachers. For some, the ongoing isolation of their professional existence left them ill prepared and anxious about sharing their tacit knowledge, hindering their participation in the knowledge creation process. Uncertainty also grew out of the gap between the official story of school operation based on Lutheran principles and the highly stressful lived reality. At almost the opposite extreme, the experiences of Rainbow Terrace indicate that too much coherence in school structures can also be detrimental to knowledge creation. The Total Systems Model had the effect of filtering out meanings that did not fit within its parameters. As long at the parameters remained unchallenged, only single-loop learning was possible.

Departmental (or faculty) structures in high schools have the potential for hindering knowledge creation. At Willowbank, the physical location of departmental staffrooms made interaction difficult. The IDEAS Group transcended this division, coming together as a group of committed professionals regardless of the subjects they individually taught. While departmental structures did not hinder the IDEAS Group in their knowledge creation, the dynamics of inter-departmental communication and 'territory' did complicate the group's effort to spread the knowledge across the school. One department in particular spearheaded resistance against this endeavour. The spread of the knowledge across the school was also hindered by the lack of alignment between the pedagogical framework and the infrastructural design of the school – particularly the use of resources. While the deputy principal/facilitator successfully provided administrative leadership within the *ideas* process, she was not able control the school budget and resource allocation. The principal, who had encouraged IDEAS but had very little personal involvement in the process, appears to have made no

attempt to align the schools infrastructural design with the vision and schoolwide pedagogy.

Facing reality

A significant factor that encourages knowledge creation is the ability of a staff to recognise the current reality of their situation, avoiding oversimplification or blaming others. In the *ideas* process, the snapshot of the schools current 'reality' is provided by the diagnostic inventory data which is analysed by the teachers in a no blame environment. While successful practice are identified and built on – this occurs within in realistic overall picture of school operation.

At both Willowbank and Holy Cross the data indicated some very negative aspects of school operation. At Willowbank the IDEAS Group consisted of volunteers with a willingness and motivation to turn the school around. At Holy Cross, the reality was so grim that for some it could not be faced. For others, the undiscussables began to emerge providing some hope that they could be addressed. At Rainbow Terrace, the reality of the power of the Total Systems Model began to emerge over time for some within the IDEAS Team. This also provided insight into the dynamics of the controlling nature of the administrator leadership in the school.

Sharing Tacit Knowledge

The sharing of tacit knowledge plays a key role in the knowledge creation process. While knowledge creation is encouraged when tacit knowledge is subject to scrutiny and to discussion, it may be hindered if tacit knowledge is accepted uncritically. The IDEAS Group at Willowbank interrogated their values, beliefs and mental models – they challenged each other, forging shared meaning. At Holy Cross, teachers were operating in a culture of isolation and with little feedback on their performance. Some teachers felt vulnerable, concerned about gaps in their professional knowledge, and unsure of its currency. This had a constraining effect on their willingness and potential to share their tacit knowledge. At Rainbow Terrace, the sharing of tacit knowledge was strongly encouraged and supported, provided that the knowledge being shared came within

the parameters of the Total Systems Model. Some diversity of views did begin to surface later – as the parameters were questioned.

The knowledge creation process can also be constrained when people are sharing negative stereotypes. As an example, some teachers at Willowbank saw IDEAS as top-down change and could not be convinced otherwise. Within the schema they were sharing, there was no recognition that this might be something different – it was simply another change to be resisted. The worth of the knowledge created by the IDEAS Group was irrelevant to them.

Good Communication

Good communication between teachers supports the knowledge creation process. It is important to develop a shared language, so that teachers have a common understanding of the terminology being used. Where there is uncertainty about the meaning of terms or different understandings of what they mean, knowledge creation is constrained. At Holy Cross, a lack of common understanding of terminology in use caused some teachers to hold back from participation in professional conversations. They felt vulnerable and did not want to expose their lack of knowledge. The teachers at Rainbow Terrace, expressed confidence that they had developed a shared language, and could understand what colleagues were seeking to communicate. The strong communicative environment developed by the IDEAS Group at Willowbank, provided the foundation for the creation of their pedagogical framework. Their communication with the rest of staff was variable.

In each of the cases, to different degrees, professional conversations played a key role in the development of an environment where meanings were shared. At Rainbow Terrace and within the IDEAS Group at Willowbank, professional conversations helped teachers to explore their assumptions – contributing to the building of shared meaning - and thus to knowledge creation. Some teachers at Holy Cross welcomed the opportunity to engage in professional conversations, others found it difficult because of lack of trust.

A Positive Social and Emotional Climate

From their various perspectives, all three cases clearly indicate the importance of good relationships and a positive emotional climate in the knowledge creation process. This is a complex area but the findings indicate that knowledge creation is encouraged where the relationships between teachers are based on trust and support. This was demonstrated by the IDEAS Group at Willowbank – who were able to share and interrogate their varied values, beliefs and mental models, probing their basic assumptions about practice. This was an emotionally difficult process for them, but supported by the relationships they developed.

Where relationships are poor, tacit knowledge is unlikely to be shared to any significant degree. In the absence of trust and support, the tacit knowledge that teachers may choose to share is unlikely to be interrogated, and assumptions about practice are unlikely to be questioned. The experience of Holy Cross illustrates the effect such a climate can have on the knowledge creation process. The feelings of vulnerability, anxiety and stress, all indicative of a negative emotional climate, constrained knowledge creation for some teachers. Other teachers, those who were more optimistic, believing they could make a difference, were able to work through this and begin to develop more positive relationships.

At Rainbow Terrace, teacher relationships were characterised by trust and support and the emotional climate was positive. The teachers willingly shared tacit knowledge from early in the IDEAS process, beginning with an exploration and sharing of personal pedagogies as the basis for developing a schoolwide pedagogy. They were prevented from interrogating their beliefs and questioning basic assumptions about practice, however, by the Total Systems Model. Interestingly, in this case, the good relationships were being used to support the Model – because the principal had intentionally built 'absence of criticism' into the school culture. In order to challenge the Model, teachers had to challenge the understanding of good relationships and engage in critique.

Space for Knowledge Creation

As the Rainbow Terrace example so clearly indicates, while a supportive social environment is important in the knowledge creation process, it is not enough by

itself. Teachers also need space to be able to engage in knowledge creation. This involves having the time and a place to meet to engage in sharing tacit knowledge, developing common understandings. If people do not have the time to come together to share and critically reflect on their practice, to engage in professional conversations, then the process risks being superficial and based on consensus rather on the results of deliberation. To really engage in knowledge creation, however, teachers also require 'mental' space – for envisioning what might be possible, for developing understanding of new concepts and new ways of working.

6.3 Locating the Inquiry Within and Beyond the Literature

Now that the research questions have been addressed and tentative conclusions drawn from cross-case comparisons, it is opportune to reflect on how these findings fit with the review of the literature presented in Chapter 2. The theoretical perspectives explored in that review both illuminated and provided a basis for interpreting the processes observed in this inquiry. The literature review draws on a range of different theoretical orientations and perspectives – reflecting the complexity of the processes of knowledge creation. The theories of Nonaka and Takeuchi (1995) and their various associates have proved particularly useful, especially when viewed in conjunction with situative perspectives on cognition, particularly distributed cognition (e.g. Hutchins, 1995; Salomon, 1993a), and with the notion of culture as a cognitive process (Lakomski, 2001; Strauss & Quinn, 1997). The thinking of Argyris and Schön (1996) permeated much of the theory, in particular the concepts of single-loop and double-loop learning. Finally, an exploration of the role of emotion in organisations extended understanding of the factors identified as influencing knowledge creation.

This inquiry rests on an understanding of knowledge as a social construction. Through sharing and negotiation in ongoing joint action, the teachers in the three case study schools have created knowledge and generated meaning within their relationships. Consistent with descriptions found in the literature, this knowledge is situated and practice-centred (Damon, 1991), fundamentally influenced by its context (McLellan, 1996), more something that is experienced rather than acquired (Moore, 1999), and never complete (Gergen, 1995).

The eclectic nature of the literature review indicates that identifying emerging understandings of knowledge creation in schools engaged in a process of whole-school renewal is no simple task. While all of these theoretical perspective may be brought together in particular ways to illuminate the study, they do not fully explain its findings. Some additional factors have emerged that may extend understanding of the processes at work.

Extending Understanding of Professional Learning Community

The creation of contextualised knowledge by teachers overcomes the dichotomous relationship, identified by Connelly and Clandinin (1995b), between teacher practical knowledge and knowledge received from outside the school. The gap between these two epistemologically different places (Craig, 1995a), between contextualised 'know how' and decontextualised knowledge from distant sources (Huberman, 1983) is no longer relevant when teachers can share their knowledge, draw on knowledge from outside, and create context specific knowledge informed by both.

Such knowledge is created within, and central to, the work of the professional community of the school. The nature of successful professional learning communities is comprehensively described in the literature (e.g. Hord, 1997; Bryk, Camburn & Louis, 1996; Kruse, Louis & Bryk, 1994). While it is implied within these descriptions, 'the creation of contextualised professional knowledge' could justifiably be specifically included as a characteristic. It is consistent with, but an extension of, existing descriptors.

Liberating Space for Teachers

The importance of 'space' as a foundation for knowledge creation is identified in the literature (Nonaka, Konno & Toyama, 2001; Nonaka & Nishiguchi, 2001; von Krogh, Ichijo & Nonaka, 2000; Nonaka & Konno, 1998). Physical and mental space is required for people to interact in their specific context to create knowledge (Nonaka & Nishiguchi, 2001; von Krogh, Ichijo & Nonaka, 2000). While this has proved a useful concept, the findings here go beyond the importance of ensuring space is available at each stage of the knowledge creation spiral. This inquiry goes further by identifying how engagement in knowledge

creation activities can actually open liberating spaces. Engaging with *ideas*, teachers purposefully work towards school improvements relevant to them and grounded in their practice. Through their collaborative action, they develop new patterns of relationships and enhance their 'shared communicative environment' (Krauss & Fussell, 1991). This activity creates space for teacher pedagogical leadership, for the questioning of current practice and for teacher initiated professional interaction – all opening up the potential for change, including change beyond that anticipated.

The Emergence of a New Paradigm

This opening up of liberating space for teachers has a further effect. Each school has a dominant paradigm – a managerial paradigm, value-system or guiding theory – that strongly influences current operation. Existing paradigms, and the organisational structures which support them, are difficult to challenge. In each case, as teachers worked within the liberating space created by their engagement in *ideas,* space also opened for a new paradigm to begin to emerge. In each case, this new paradigm was activated by teacher engagement with knowledge creation processes, although its nature was strongly influenced by powerful contextual factors. In each case, as a new paradigm began to emerge the existing dominant paradigm became more visible. This is important as organisational members need some understanding of the basic paradigms and operating norms that underpin their organisation, if they are to be able to engage in double-loop learning (Morgan, 1997).

The Significance of the New Paradigm

The emergence of the new paradigm represents the creation of new discursive elements or the beginnings of a new discourse community in the school (Prawat & Floden, 1994; Fish, 1980). It also opens up the possibility of reconceptualising work and of knowledge emerging that could not have emerged under the previous conditions (Clancey, 1995). The new paradigm provides a way of moving beyond existing interpretive frameworks that have a constraining effect on thinking (Resnick, 1991) and provides a way of questioning the theories and values embedded in these frameworks.

Collaboratively working within the liberating spaces that have opened, teachers (or a group of teachers) begin to develop an awareness of the status quo and to build a capacity to critically evaluate current realities. Drawing on the new knowledge they have created, their new patterns of relationships and their improved communicative environment – they begin to challenge the status quo in ways not previously possible. The new paradigm represents an alternative way of collectively working towards a better future, with better outcomes for the school. Teacher leadership, particularly pedagogical leadership, is clearly an important factor here.

The notion that teachers are building their capacity to improve school outcomes through developing contextualised knowledge and the work of the professional community - based on shared learning rather than individual learning – resonates with aspects of the King and Newmann (2001) conceptualisation of school capacity building. Similar themes may be discerned, though the focus of this inquiry is somewhat different as it has a specific focus on the dynamics, implications and effects of knowledge creation.

Knowledge Creation and Relationships

The literature suggests that knowledge creation requires good relationships (e.g. Nonaka & Nishiguchi, 2001; Fullan, 1999) and these can be fostered through 'care' (von Krogh, Kazuo & Nonaka, 2001; von Krogh, Ichijo & Nonaka, 2000; von Krogh, 1998). It is suggested that knowledge creation requires an environment characterised by trust, empathy, support, lenience in judgement (not blaming), and the courage to take risks and voice opinions (von Krogh, Ichijo & Nonaka, 2000; von Krogh, 1998). The findings of this inquiry suggest that although good relationships are important, where they do not exist, knowledge creation processes may provide a means of moving forward. In a situation where social relationships are poor, knowledge creation may be difficult and the nature of the knowledge will be strongly influenced by these unfavourable contextual factors. However, knowledge creation processes may provide organisational members with a liberating space to begin to address some of these adversities. The process may be difficult and some may find it too stressful to engage – but change is still possible.

Knowledge Creation and Enabling Leadership

The literature suggests that the task of organisational managers is to enable the emergence of knowledge, fostering a culture where knowledge can freely emerge (Nonaka & Nishiguchi, 2001; Nonaka & Konno, 1998). The findings of this inquiry suggest a much more complex relationship between the organisational manager (or principal) and knowledge creation in the school. None of the principals of the case study schools could be described as consistently demonstrating leadership that enabled knowledge creation. The kind of administrator leadership that would enable knowledge creation in schools is an important topic that requires further study.

6.4 The Importance of this Research

Operating within the context of globalisation and the discontinuous change accompanying the transition from an industrial age to a knowledge age, schools are being given a central role in creating Australia's future prosperity and stability. Teachers are expected to educate their students for continued success in a world as yet unknown. These are formidable challenges that cannot be met from within the structures and processes of an industrial age school.

To take a central role in the knowledge society, meeting the complex challenges they face, teachers need to become creators of knowledge. Viewed as technicians, they cannot possibly fulfill the demands placed on them by society. Their work and the work of schools needs to be re-imaged so that teachers are recognised as knowledge producers and schools as sites of knowledge production. This represents a redefinition of teacher professionalism.

Individual teachers can no longer cope with the overall complexity of teachers' work. No matter how professionally competent, individuals cannot meet these challenges. Without the sharing of understandings and working towards an agreed better future for the school, the efforts of individuals are likely to lack effectiveness because they do not form part of a coherent whole-school plan towards agreed goals. Schools also need to continually engage in processes of renewal – and this requires different ways of working.

This research is of fundamental importance because it provides insights into what knowledge creation processes and a reimaging of the work of teachers may mean in different school contexts. Its importance rests on a number of factors, outlined below.

Teachers are being placed in an untenable position. If they are expected to move from teacher professionalism in an industrial age paradigm to teacher professionalism in a knowledge age paradigm – they need processes which allow generative (double-loop) learning rather than adaptive (single-loop) learning. This requires a fundamentally different way of working – with teachers becoming collaborative creators and implementers of contextualised professional knowledge.

This reimaging of the teaching professionalism represents a paradigm shift. It requires the interrogation of existing practice, building on success but moving away from hierarchical, bureaucratic mindsets, to more holistic approaches, where patterns of interaction between professionals and the cognitions that they share become a key part of their professionalism. In order to achieve this, teachers need a process or set of processes that allow for the interrogation of existing ways of working – challenging the assumption underpinning current practice and developing new patterns of interaction. Teachers cannot be expected to take on new ways of working, reimaging their profession, if they remain constrained by existing structures to only improving existing practice (single-loop learning).

Double-loop learning may be achieved through the sharing of mental models to envision a desired future and develop agreed pedagogical principles to guide practice in the school. The aim of such a process is to harness and build on the knowledge of the group, to build capacity in the sense that the group can achieve more than a collection of individuals. The learning and the artefacts developed as a result provide the foundations for further learning. What teachers can achieve as a group becomes an important aspect of their operation as professionals, at the same time, enhancing and informing their own individual practice. As a result, individual professional competency is enhanced and the school as an organisation builds its capacity to respond to the complex demands of a changing environment.

This inquiry has explored processes of school renewal in three schools and offers insights into the way that knowledge creation processes occur in specific contexts. Collaboratively engaging with IDEAS, working within a framework of whole-school operation, teachers are placed at the forefront of knowledge creation. They are far from being the passive recipients of decontextualised, abstracted knowledge that does not take contextual complexity and diversity into account.

The research demonstrates the feasibility of teachers creating knowledge that is situated (developed within its context) and distributed (with artefacts to hold the knowledge and provide a basis for further development). There are indications, too, that these ways of working can become embedded in the culture of the school – through new patterns of activity and interrelationships. In this way, through the sharing of cognitions and of experiences teachers can change their school's culture.

It is an appropriate time to return the assertion, quoted previously:

> We are in the midst of a revolution from which a new order is emerging. The solutions of the past decades will not suffice in the new knowledge age (ISR, 2000, unpaginated).

This research offers insights into the possibility of knowledge creation as the key to the emergence of a new order in schools.

6.5 Recommendations for Future Research

This inquiry has focused on the creation of contextualised knowledge - a topic of great significance for teachers and for schools. The recommendations which follow offer some suggestions on how the findings may be further developed

Of crucial importance is the impact of knowledge creation on schools outcomes:

Recommendation 1:

> That links between knowledge creation and organisational outcomes be investigated.

Such research would examine links between knowledge creation and organisational outcomes such as improved student learning, problem solving capacity, teacher morale and feelings of efficacy.

The impact of new knowledge on teacher practice also remains an important area for further inquiry.

Recommendation 2:

> That ways of supporting teacher engagement in knowledge creation processes be investigated.

This would involve investigating ways of creating an environment conducive the knowledge creation processes – reducing the fragility of the process through 'care' and the creation of space (including mental space). Part of this may involve investigating different ways of scaffolding the learning of the group while acknowledging diversity and vulnerability.

This is more than the resourcing issue of making time available for working collaboratively – it involves a reconceptualisation of the work of teachers and by implication, a reimaging of the role of administrators. This leads to the next recommendation:

Recommendation 3:

> That the reimaging of the role of the principal in the knowledge creating school be further investigated.

This could include consideration of what constituted administrator leadership that enabled knowledge creation in the school.

Finally, but significantly, more case studies are needed to provide additional examples of the knowledge creation processes at work in schools.

Recommendation 4:

> That more case studies be carried out in schools engaging in knowledge creation work.

Carrying out additional but broadly similar studies would:

- build understanding of the complexities of knowledge creation in schools;
- enable teachers to learn from the experiences of other schools – gaining insight into how contextualised professional knowledge has been created in a range of settings but without this becoming decontextualised and abstracted;

- provide the opportunity for teachers to relate to and learn from the experiences of other practitioners - raising awareness within schools of the processes and factors impacting on knowledge creation so schools may engage mindfully and intentionally;

- to open up areas for discussion that schools can explore and compare with their own realities. This may help teachers to uncover or to gain understanding of processes occurring in their own school that may currently be hidden.

In addition, the tracking of knowledge creation process in schools through case study analysis:

- models new ways of working by teachers in schools – there is credibility in its practitioner base;

- recognises the complexity (messiness) and ambiguity inherent in this process and so models without sanitising and omitting problems faced along the way;

- offers ways of raising awareness of the benefits within the classroom of collaborative activity outside the classroom. If knowledge creation processes can be seen to enhance classroom practice rather than detract from it, teachers may become more willing to re-image their work.

Increasing the number of cases studied would also provide an increasingly credible basis identifying broad patterns and making generalisations across cases. It would also allow for more specific tracking of the effects of contextual factors on knowledge creation processes, perhaps with the intention of isolating and testing particular variables.

Other fruitful areas for further research might involve inquiring into:

- ways of developing shared experiences to build new cognitive connections between people and new ways of relating;

- the role of professional conversations in the knowledge creation process;

- ways that teachers can share, and build on their collective knowledge and successes without feeling that they are putting themselves forward in a way that is unprofessional.

6.6 Final Reflections

In bringing this inquiry to a close, I would like to reflect on its significance. I began with some understanding of the enormous complexity of teachers' work and how that could not be addressed within the images and structures of industrial age schools. Working individually, teachers could not hope to meet these challenges. It was far from clear how teachers could begin to move beyond this – into a knowledge age paradigm. This was a transition unlikely to occur as a result of legislation or policy directive. As the kind of change that requires a reconceptualisation of teacher professionalism, it could not be decreed. One way forward appeared to lie with teachers reimaging their work by becoming creators of knowledge. The collaborative creation of contextualised professional knowledge could enhance school flexibility and responsiveness to change, and lead to new understandings of teacher professionalism.

As this study indicates, IDEAS has provided one means of beginning to achieve this transition within individual schools. The three cases explored in depth in this inquiry illustrate that despite very different motivation and school contexts, teachers can collaboratively create and implement contextualised professional knowledge. Associated with this, new patterns of interaction and changing professional relationships between teachers have opened up new possibilities and opportunities, beyond those anticipated. IDEAS has provided teachers with the opportunity to be pedagogical leaders and to work as collaborative individuals within an agreed pedagogical framework. Overall, the study provides insight into what teachers might achieve when new space is created within existing structures. However, three schools is a small sample and this raises the question of how localised difference in a small number of schools might contribute to more broadly based change.

Perhaps one answer lies with knowledge creation processes. It is interesting that in each of the case study schools engagement in the *ideas* process had the

unanticipated effect of opening a liberating space and allowing a deep seated tension within the organisation to emerge. In each case this was between some form of dominant paradigm and an emerging paradigm. If the same principle is applied at a broader inter-school level another possibility begins to emerge. Approximately one hundred and fifty schools have participated in IDEAS to date. New patterns of interaction and professional relationships have developed between these schools. A community of practice has developed, where knowledge and experiences are shared. As new schools participate, they draw on the experiences of other schools, but then extend and enrich the project through their own learning. This is enhanced by research and ongoing conceptual development. In one sense IDEAS is a good example of a knowledge creation spiral in action – where the individual schools learn from each other and are, as a group, enriched as a result. This is knowledge creation at an aggregated level – and I would like to suggest that through such activity a liberating conceptual space may be opened.

There is clearly a tension between the dominant (industrial age) paradigm and the emerging (knowledge age) paradigm. It is my hope – and this study suggests that it may be possible – that through engagement in knowledge creation processes such as IDEAS, schools working collaboratively may begin making that transition from the industrial age to the knowledge age, working as collaborative individuals to re-image their work and redefine their professionalism. Schools did not set out to address tensions between these competing overarching paradigms, but this may be something that is emerging from their collective engagement with these processes. There is credibility in teacher driven change and teacher reported school successes. This may be one small beginning that carries the potential for great change.

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Appendix 1: Sample of IDEAS Diagnostic Inventory Survey for Teachers

A SCHOOL DISCOVERY INVENTORY FOR STAFF

SECTION A - OUTCOMES

What are your perceptions of your school's overall successes, achievements and limitations during the past year? Consider the following statements and any evidence which exists to support, or not support, them. Indicate your response to each statement by ticking one of the five boxes.

SCHOOL SUCCESSES AND ACHIEVEMENTS	Strongly Disagree	Disagree	Don't Know	Agree	Strongly Agree
Student Achievement					
1. I regard the overall standards of achievement in **literacy and numeracy skills** at this school as sound.					
2. Students at this school have **sound standards of achievement in key learning areas** other than basic numeracy and literacy.					
3. This school prepares students well to become **concerned, active citizens.**					
4. Students demonstrate a **sense of pride** in their school.					
5. Students at this school acquire noticeable **self-esteem and sense of worth** from their school experiences.					
6. Students at this school acquire significant processes for applying what they learn to **real life** situations.					
7. Students' expectations in **preparing to proceed to "next institutions"** are met successfully at this school.					
Staff Expertise and Professionalism					
8. The school administration and teaching staff **demonstrate respect** for each other's work and responsibilities.					
9. The staff of this school **demonstrate a sense of pride** in the school's identity.					
10. The teachers at this school perceive themselves to belong to a **significant, influential profession**.					
11. The staff of this school perceive themselves as **managing change processes with confidence**.					
12. The **morale** of classroom teachers at this school is high.					
The School's Public Image					
13. This school is an important source of **community pride and identity**.					
14. This school is viewed by community members as an **important centre for learning**.					
15. The school has an image of providing a **caring and respectful environment** for all students.					
16. The school's response to the demands of a continuously **changing world** is held in high regard by the community.					
17. The school successfully models for the community how to **address complex problems**.					
18. The school community is knowledgeable about the school's **achievements and its goals** for the future.					
19 Parents and students view with confidence the school's **assessment and reporting practices**.					

SECTION B - CONTRIBUTORY ELEMENTS

What are your perceptions of the extent to which the following factors enable your school to achieve high levels of success? Consider the following statements and any evidence which exists to support, or not support, them. Indicate your response to each statement by ticking one of the five boxes.

SCHOOL VISION AND STRUCTURES	Strongly Disagree	Disagree	Don't Know	Agree	Strongly Agree
1. The school has developed an **inspirational vision**.					
2. The school has developed **high expectations** for the level of achievements of students.					
3. The teaching **staff are highly competent** in their areas of instructional responsibility.					
4. The school administration is active and visible in **promoting excellence** in the school and in the broader community.					
5. The school recognises **significant leadership roles** for teachers, parents and students as well as for administrators.					
6. The **staff assume significant roles** in important school **decision-making** processes.					
7. The staff are active in **promoting the school** in the eyes of the community.					
8. The school assesses the **relevance of its vision to students' needs** on a systematic basis.					
9. The school treats the **evaluation of its key educational processes** seriously.					

THE SCHOOL AND ITS COMMUNITIES	Strongly Disagree	Disagree	Don't Know	Agree	Strongly Agree
1. The school staff demonstrate obvious **cohesiveness, respect and trust** in their working relationships.					
2. The school has processes which enable staff, parents and students to assume **collective responsibility** for individual students' progress and needs.					
3. The school staff have processes to learn from each other's **successful practices**.					
4. The school is creating **mutually beneficial partnerships** with agencies external to the school.					
5. The school takes steps to reach **disadvantaged families and groups**.					
6. When achievements are disappointing, the culture of the school encourages an **examination of processes** before blame is ascribed to individuals or groups					
7. The school is responsive to parents' wishes for informed discussion about **programs and students' progress**.					
8. **Open-door communications** among staff, parents, administrators and students are a feature of the school.					

SECTION B - CONTRIBUTORY ELEMENTS continued

What are your perceptions of the extent to which the following factors enable your school to achieve high levels of success? Consider the following statements and any evidence which exists to support, or not support, them. Indicate your response to each statement by ticking one of the five boxes.

SCHOOL WORK PRACTICES AND ORGANISATION	**Strongly Disagree**	**Disagree**	**Don't Know**	**Agree**	**Strongly Agree**
1. Teachers at this school are encouraged to **design learning environments** which facilitate high quality teaching.					
2. The **physical design** of the school is conducive to effective teaching and learning in my area(s) of professional responsibility.					
3. The organisation of time enables provision of a **range of grouping arrangements** in my area(s) of responsibility.					
4. School structures reflect concern for personalised **student-teacher interaction** and relationships.					
5. Students in my area(s) of responsibility have good **access to specialist learning resources**.					
6. At this school, **planning of the school's facilities** begins with consideration of how to enhance teaching and learning.					
7. **Technology** is used purposefully to facilitate and enrich learning experiences.					
8. Planned time is available for **shared reflection** about teaching and learning.					

SCHOOL TEACHING, LEARNING AND ASSESSMENT	Strongly Disagree	Disagree	Don't Know	Agree	Strongly Agree
1. The school's staff have developed **agreed definitions** about excellence in teaching.					
2. The school staff systematically examine teaching in the light of **agreed standards** for high quality instruction.					
3. Staff Best Practices in teaching and learning are **identified and celebrated**.					
4. The prescribed **curriculum is systematically modified and updated** to reflect the perceived needs of students.					
5. This school employs teaching strategies which **respect the values of the community**.					
6. Teachers at this school employ assessment processes that take into account a **diversity of student needs, abilities and learning styles**.					
7. Teachers employ carefully developed **standards of student performance** in assessing student achievement.					

IN RETROSPECT

A) What do you regard as the three (3) most distinctive achievements of your school this year? Briefly describe these achievements here.

1.

2.

3.

B) Which aspects of the school would you change in order to enhance its effectiveness?

1.

2.

3.

Appendix 2: Data Collection: Familiarisation Phase - Topics for Interviews

Familiarisation

In Phase 1 of the data collection, semi-structured interviews were used to explore individual teacher perceptions of the school context and culture. Teacher learning and generation of knowledge within the school were explored, particularly in relation to IDEAS.

The interviews explored such aspects as:

- knowledge of the IDEAS process, how it has unfolded in the school
- role of the IDEAS School Management Team and role of administration
- the teacher's own role in the project
- level of whole staff participation and any issues which have arisen
- what the staff are seeking to achieve through IDEAS
- the teacher's perception of the progress being made
- the kinds of leadership that are supporting the project
- any initial impact on teacher beliefs and practice
- relationships within the group and how divergent views are dealt with
- how the project may develop in the future
- how student learning may have improved as a result of the project
- ways teachers work together and learn from each other in the school
- kinds of knowledge valued in the school
- how new knowledge comes into the school
- image of good teacher in the school

Appendix 3: Data Collection: Deepening the Inquiry Phase – Topics for Interview

Deepening the Inquiry

Semi-structured interviews were conducted to further explore aspects of the professional community and its learning. These involved the exploration of a number of areas, particularly in relation to IDEAS.

The interviews explored such aspects as:

- the progress made with the *ideas* process, what has been achieved
- impact of the process on professional relationships and ways of working
- the relationship between individual and group learning
- the relationship between the teacher as an individual professional and the teacher as a collaborative professional
- the impact and influence of 'outside' knowledge on the knowledge of the individual and the group
- the influence of group interaction and shared learning on individual teacher practical theory and classroom practice
- the possibility of resultant changes in the meaning ascribed to teacher professionalism.

Appendix 4: Focus Group Discussion - Willowbank State High School (December 1999)

Willowbank IDEAS Group

The IDEAS Group were asked to reflect on issues that had arisen from the first round of interviews.

ML: (from transcript) *As a result of listening to people today and yesterday and also other things gleaned from presentations and observation in the past, I have jotted down my thoughts about what seems to be issues that could be discussed. These are just my thoughts so any of these could be changed or the list added to.*

(I had listed a number of topics on the whiteboard)

ML:

- *There's professional learning community, it has been developed within this group – has it also been developed across the broader school? Are there any issues there that could be discussed?*
- *Spreading the 'Willowbank way' - that's the vision, the concepts and the supporting questions - across the whole school, across the whole staff - retaining and taking advantage of the learning that this group has, or the knowledge that this group has generated.*
- *The sustainability of what's been achieved, so you can take it forward into the future, build on it.*
- *Then, going back to the Research-based Framework – the enhanced student learning in the centre – that seems to be the focus of everything, so what does that mean in terms of the IDEAS process? What will the enhanced student learning be or how you know that the student learning has been enhanced? What is the link between the two things?*

Participant: Are these topics that you have identified, that we need to clarify?

ML: They are the things that keep cropping up. Things that people have talked about - that you are still working on and are still being resolved.

(end of extract)

It was agreed that these items would be discussed and the group had nothing more to add to the list. It was further agreed that the group would take responsibility for moving though the list so that each topic was discussed).

Appendix 5: Focus Group Discussion – Holy Cross Primary School (November 2000)

Holy Cross Teachers' Group Discussion

I provided a sheet with these suggested question for the group to discuss. These were to encourage reflection on what had been achieved and where the process might go the following year. The group then worked their own way through the questions – in the order they preferred. This allowed the group to discuss what was important to them.

Some topics for your consideration:

- What have you achieved this year as a group?
  - what have been the positives?
  - how do you feel about the rate of progress?
  - what do you still need to work at?
  - are you on the right track?
  - what could be done to enhance and encourage your work together?
  - Is there anything that needs to be worked through to make this possible?

- In relation to professional learning and development:
  - have you have you developed and learned as an individual and as a group this year?
  - how has that happened? Have you learned from each other? From outside the school?
  - is everyone able (and willing) to contribute? How can levels of trust and support be increased?
  - does the climate foster excellence? Is it not advisable to be too successful? Should this situation be addressed?

- Leadership and responsibility:
  - what are you responsible for collectively?
  - what aren't you responsible for?
  - is there shared leadership? Should there be more?

- How have the student experienced this progress:
  - in their classroom this year? What about next year – will that now be different?
  - in what is expected of them - e.g. in terms of their behaviour? Have you got it right? What more is there to be done?

- In relation to the vision statement:
  - is this a useful document for the school? Does it still suit your purposes?
  - what is now happening in the school that reflects this? (that wasn't happening before)
  - has the 3 plans approach worked?
  - is there anything that needs to be discussed about the 'Lutheranness' of the school?

- What are your hopes for the future? Do you have any group resolutions – to help the collective effort? Can you make a difference?

Appendix 6: Focus Group Discussion – Rainbow Terrace State School (November 2000)

Rainbow Terrace IDEAS School Management Team Discussion

I provided a sheet with suggested topics for discussion These were to encourage reflection on what had been achieved and where the process might go the following year. The group took responsibility for the order the topics were discussed.

Some topics for your consideration:

- the IDEAS Management Team's understanding of/views on IDEAS (the process, the Research-based Framework, alignment, teacher leadership, and parallel leadership)

- what has been achieved through IDEAS at Rainbow Terrace so far? How has your involvement in IDEAS contributed to or enhanced your work or working environment at Rainbow Terrace?

- professional development opportunities provided through IDEAS - as a Management Team and as individuals? What have you learned as individuals and as a group? How do you think you have changed? (as an individual, as a group, as a staff)

- How has the IDEAS process developed the Management Team as a professional learning community? Developed the staff as a professional learning community?

- How has the process provided opportunities for the Management Group (individually and collectively) to take initiative, demonstrate leadership and promote particular ways of working together?

- How does the Research-based Framework sit with the Total Systems Model? What are the links between them?

- Plans for achieving the move from individual pedagogy to agreed beliefs about pedagogy to schoolwide pedagogy. What is happening with the vision?

- Plans for 2001, for self, Management Team and school? Sustaining the process?

Appendix 7: Holy Cross Primary School - Schoolwide Pedagogy (November 1999)

Holy Cross Primary School: Statement of Excellence in Teaching and Learning

The following statements outline what the teaching staff of Holy Cross Primary School believe about teaching and learning and have been developed in response to School's Mission, Vision and Values.

The Principle that Every Child is a Special Person. In detail:

- The recognition, respect and encouragement of every child as a special person with individual abilities, strengths and talents.
- The acknowledgement of individual rates of learning, with every child being given the opportunity to participate, learn at their own level, have their say and be noticed.

Means that staff will:

- Consider each student as a child of God
- Listen to students
- Provide rich and varied opportunities
- Give respect and empathy
- Accept and love the students
- Accept the student's best contribution with encouragement and support
- Know and understand students, their strengths and weaknesses
- Consider that students can be responsive, flexible and adaptive

Means that students see themselves as:

- Being a child of God
- Being special and important
- Having unique gifts to share
- Being respected and able to respect
- Being part of the School community

The Principle of High and Appropriate Expectations in the Basics. In detail:

- The provision of many opportunities for success across a wide range of areas, enriching learning through choice and diversity of activities
- Shared high expectations for each student's mastery of the basics
- Means that in my teaching students will
  - Learn the essential skills for effective learning.
  - These generic skills are:
    - Collecting, selecting, analysing and organising
    - Communicating ideas and information
    - Planning and organising
    - Working with other
    - Solving problems
  - Learn outcomes, structured and sequenced in whole-school programs for each of the nine Key Learning Areas as documented in the current curriculum statements. These areas are
    - Christian Studies (LIFE)
    - English
    - Mathematics
    - Study of Society and the Environment (SOSE)

- Science
- The Arts- Music, Art, Drama, Dance
- Technology
- LOTE
- Health and Physical Education

- That all basics have functions (purposes) and contexts which need to be considered when teaching and learning take place.

The Principle of High and Appropriate Expectations in Thinking:

Means that Staff will:

- Know each student, their talents, abilities, needs, aspirations and interests
- Know how to challenge, empower and encourage
- Know how to set goals and expectations and what goals and expectations to set
- Know, understand and use thinking processes, enrichment and extension
- Give opportunities by organising time, giving students 'space' and structures (eg. questioning) to develop thinking, creativity and problem solving

Means that Students are and become:

- Independent, self-directed, flexible, creative learners
- Confident, cooperative, able and willing risk takers
- Problem solvers
- Free to express ideas and opinions and to question and inquire

Means that teaching and learning will include

- Thinking processes, strategies and structures associated with e.g. multi-intelligences (Gardner), taxonomies of thinking (Bloom) and developing thinking (de Bono)
- Planned extension and enrichment, thinking skill development and opportunities for creativity and expression

The Principle of High & Appropriate Expectations in Treating Each Other. In detail:

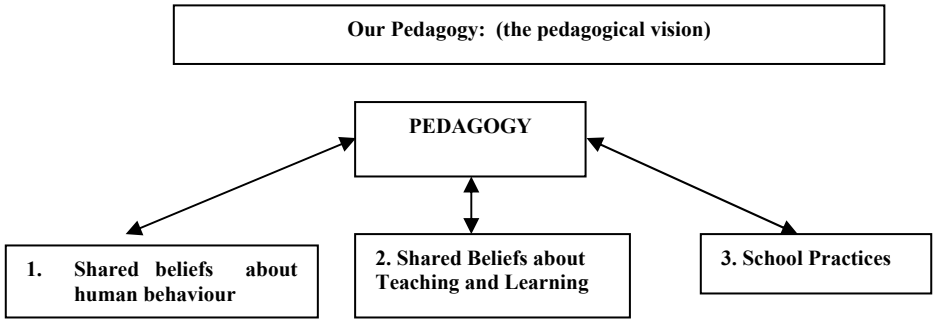
- Relationships are characterised by caring and concern for the welfare of others, along with respect, courtesy and responsibility which grows out of a mature problem solving and self-control.
- The creation of a positive, supportive and affirming classroom and school environment based of forgiveness and renewal, where learning reinforces responsible behaviour and each day represents the opportunity to start anew.

Means

- Students and staff live daily in the grace of their baptism and the Gospel
- That the commands to love and serve are part of daily living and relationships
- Students and staff appreciating their own uniqueness and that of others
- Achieving in the school community fellowship, harmony, cooperation, tolerance
- Having clearly stated codes of behaviour and relationships that are modelled by staff, students and parents, taught, explained, practised and followed through.
- Using strategies of 'hands-on' and 'real-life' activities, projects and service
- Recognising and celebrating uniqueness, achievement and performance in all areas of endeavour
- Developing procedures and opportunities for students to have ownership, involvement and reflection as part of the behaviour management development and process.

Appendix 8: Rainbow Terrace State School - Schoolwide Pedagogy (Semester 1 2001)

(Source: initial draft November 2000, Section 2 expanded and Section 3 added Semester 1, 2001).



1. Shared Belief about Human Behaviour

All behaviour is internally driven to meet each individual's unique basic needs.
People choose their own behaviour and are responsible for their actions.
Most behaviour is learned .

2. Belief s about Teaching and Learning (instructional processes)

Beliefs about Children and Learning
Learning is affected by environment
All children can learn and experience success
Learning is affected by the children's circumstances
All children are unique individuals by virtue of their:
personalities; earning styles; and the learning environment they respond to

Looks like:
Children working on individualised programs
Children enjoying themselves
Children using different means to achieve learning
Children engaging and focusing on their learning
Children working through different mediums
Children working at different levels and rates
Negotiated learning
Self-evaluation part of the learning process

Beliefs about the Significance of Relationships in Organisations
Respect;
Open communication
Positive relationships
Honesty, trust
Supportive/caring/patient
Cooperation: working towards common goals

Looks like:
Co-operative, trusting, enjoyable atmosphere in the classroom
Informed, supportive and constructively critical parents
self-managed students/teachers working towards achieving classroom goals in a happy productive atmosphere

Beliefs about Effective Learning and Teaching Practices
Cater for different learning styles and needs by providing a supportive and encouraging environment which extends and challenges the ability of all students
Teachers and students are constantly self-evaluating
ELT relies on supportive teacher/student relationships
The teaching style must compliment the learning style
Learning experiences must be relevant to the learners
Success in learning→ Risk taking → Self esteem

Looks like:
Students and teachers constantly self-evaluation
Teachers modifying and varying programs according to children's needs
Children: taking risks; taking ownership; confident; enthusiastic

Beliefs about the role of Teacher as a Professional
Adapt to change by staying abreast of current methodologies and strategies
Support learning
Act professionally according to union and EQ codes
Share ideas and support colleagues

Looks like:
Professional development is accessed
Regular formal/informal conversations
Positive role models
Supportive of colleagues
Approachable, reflective, self-assessing

Beliefs about Managing Behaviour
To encourage and teach children to make wise choices
All behaviour has a consequence (positive, neutral or negative)
To cater for group dynamics
Consistently support appropriate behaviours
To provide a supportive learning environment

Looks like:
Teach social skills in ethics
Support the code of conduct
Affirm appropriate behaviours
Making learning needs satisfying (re: internal motivation)
Create a relaxed, peaceful and clam environment
Consistently modelling: clear expectations; negotiated guidelines; fairness and tolerance; respect, consideration and dignity

Beliefs about the Role of the Teacher in the Classroom
To be a role model/mentor
To facilitate learning, model strategies, develop skills and instruct, guide and teach
To provide a variety of experiences for different learning styles
To listen, arbitrate and negotiate
Top be supportive and encourage individuals and their needs

Looks like:
Content is up to date
Patient, tolerant, rational, kind
Innovative creative
A variety of teaching styles catering for the students learning
A variety of methods
Teachers and children – partners in learning
To encourage parents to be part of the educational team

Beliefs about the Role of the Student

To be a receptive listener
To be a cooperative, active participant
To self-manage their behaviour
To practice tolerance to enable other children to learn
To be prepared and organised for learning
To be able to self-evaluate (behaviour, learning, attitude)

Looks like:

Children are occupied, contributing, participating and engaged in their learning
Children caring for their nutrition, sleep needs and uniform
Children showing respect to all of the school community
Children using school equipment with care and maintaining a clean school environment
Children are reflective and make conscious choices

Beliefs about the Role of the Parent/Care Giver

To support and encourage children and staff in the education process
To be the primary educators and carers providing for physical, social, emotional and intellectual needs
To communicate with the school to enhance learning goals
Positive role model

Looks like:

Encourage and provide for learning at home
Teach or model strategies for overcoming problems
Shows an interest in the school ethos and climate
Presents clean, well dressed, well rested students.

3. School Based Practices

Behaviour Management

Focus on self-management
Individual behaviour profiles for each student
Measuring student behaviour in relation to self-management
Study of ethics

Assessment and Reporting

Assessment at 3 levels (whole of State, whole of school, individual)
Assessment to inform teaching practices

Professional Development

Personal training log for each member of staff
Based around system needs and student needs

Learning Support and Intervention

Individualised Student Learning

A focus through the school, and especially in Literacy and Numeracy

Creating Learning Groups

Classes formed according to developmental level as well as age and social development

Eight Key Learning Areas [school based programs including]

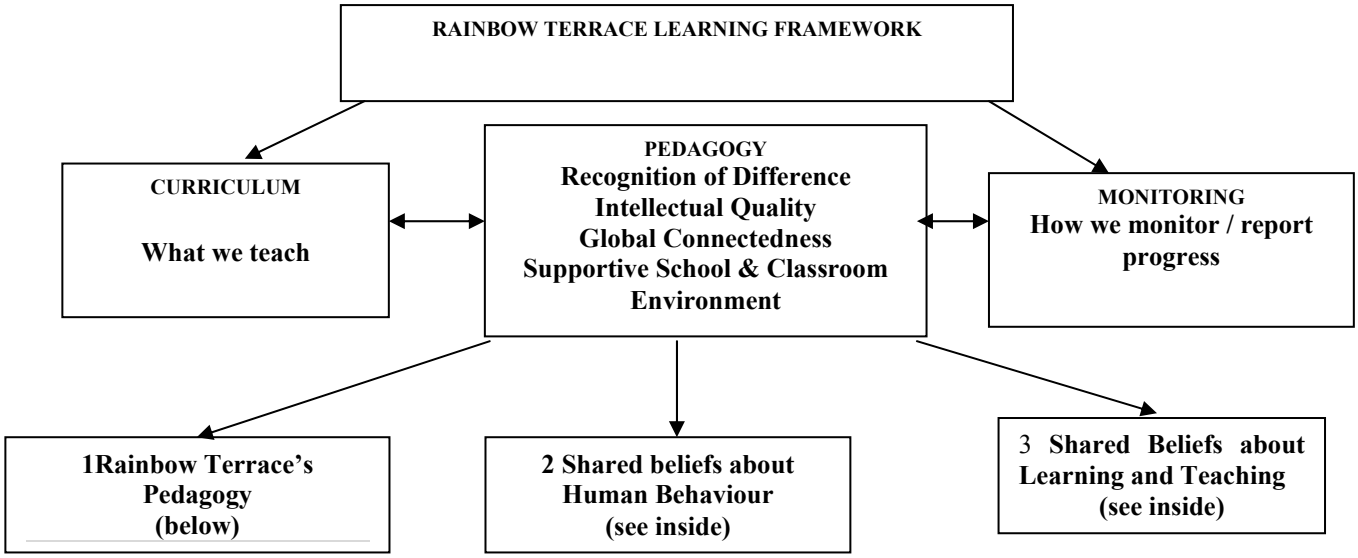
English, Mathematics, Science, Health and Physical Education, Study of Society and the Environment, Language other then English, The Arts, Learning Technology.

Appendix 9: Rainbow Terrace State School – Schoolwide Pedagogy (November 2001)

School-based Pedagogy

Vision

Choices
Learning to live
Living to learn
Together we can



Teaching and Learning at Rainbow Terrace SS is characterised by:

Recognition of difference

1. Teaching that cater to individual learning styles and basic needs
2. Celebration of and respect for diversity.

Intellectual Quality

3. Clearly defined quality standards and outcomes.
4. An emphasis on self-evaluation and self-management.
5. Learning that extends intellectual capacity.
6. Challenging to excellence.

Connectedness

7. A focus on "hands-on", real-life tasks, that are relevant and meaningful.
8. Opportunities for negotiated learning.
9. Student-centred, self-directed learning experiences.

Supportive Environments

10. Positive relationships developed through negotiation, co-operation and teamwork.
11. Learning environments that are socially and academically supportive.
12. An absence of criticism.

1 Shared Beliefs about Human Behaviour

Beliefs about Human Behaviour

- All behaviour is internally driven to meet each individual's unique Basic Needs
- People choose their own behaviour [best attempt at the time]
- Most Behaviour is Learned
- People strive for quality in what they value

Looks Like

- People accept responsibility for what they do
- Absence of blaming others for our actions
- Seeking / choosing /learning better behaviours all the time
- Evaluating self and not judging others and their actions.

2 Beliefs about Teaching and Learning

[and what it looks like at Rainbow Terrace]

Beliefs about Children and Learning

- Learning is enhanced in a supportive social and academic environment
- All children can learn and experience success
- All children are unique learners by virtue of their personalities, needs profile and learning styles.
- Children learn at different rates and speeds
- Learning is affected by the children's circumstances

Looks like

- Children working at different levels and rates
- Children using different means to achieve learning
- Negotiated learning to develop a sense of ownership
- Children actively engaged and on task

Children engaging in real life tasks to develop a sense of purpose

Self evaluation part of the learning process

Beliefs about Relationships in Learning and Teaching

- Good teaching is based on good relationships (Teaching is a highly relational activity)
- Children learn best when the teacher is in their Quality World

Looks like

- Teachers developing supportive relationships with students
- Co-operative, trusting, enjoyable atmosphere in the classroom
- Students Teachers and Parents working towards achieving classroom goals in a happy productive atmosphere
- Open communication, supportive /caring /patience / honesty and trust
- Absence of criticism and put-downs

Beliefs about Effective Learning and Teaching Practices

- Effective Learning occurs when different learning styles and needs are provided for
- Teachers use a range of Teaching Strategies
- The teaching style must complement the learning style of the student
- Learning experiences are relevant to the learners [connected to the real world]
- Success in learning leads to risk taking which heightens self esteem to evaluate success in learning
- Students learn best when outcomes are clearly explained

Looks Like

- Teachers using a variety of teaching strategies to address the children's learning needs]
- Teachers using real life and life like examples with students
- Children taking risks, taking ownership, confident, enthusiastic
- Student outcomes and results inform changes to teaching strategies
- Teachers demonstrates the quality standard expected of the student

Beliefs about the Role of the teacher as a Professional

- Effective teachers adapt and improve by engaging current methodologies and teaching strategies
- Effective teachers continually engage in personal professional development to meet learning needs of students
- Effective teachers learn from and with colleagues

Looks Like

- Professional development engaged
- Supportive of colleagues in networked communities
- Acting as professionals according to Code of Ethics (union) and Code of Conduct (Ed Qld) and School Based expectations for teachers

Meaningful conversations about learning and teaching
Approachable, reflective, self assessing

Beliefs about Managing Behaviour

- All students are capable of self management
- Teacher's role is to assist / teach children to make wise choices for their behaviours
- All behaviour has a purpose
- All behaviour has a consequence [personal and social]
- Providing a meaningful and well organised learning environment minimises problematic behaviours

Looks Like

- Counselling students to make better choices in their behaviours.
- Teachers modelling social skills and ethical behaviour
- Appropriate behaviours are affirmed
- Self managed students actively engaged in relevant ,meaningful learning
- Consistently modelling: clear expectations, negotiated guidelines, fairness & tolerance, respect &consideration

Language of self management is used
Supporting the Code of Conduct/ethics
Learning is needs satisfying

Beliefs about the Role of the teacher in the Classroom

- The teacher's attitude/actions towards students are a highly significant factor.
- Successful Learning largely depends on the skill of the teacher
- To provide a variety of experiences for different learning styles
- To be supportive and encourage individuals and their needs

Looks Like

- Innovative – creative approaches to student diversity A variety of teaching styles catering to the students learning
- Teachers, children, parents – partners in learningTeachers seeking continuous improvement
- Modelling of clear expectations, negotiated guidelines, fairness, tolerance, respect, consideration and dignity.

Beliefs about the Role of the Student in the learning process

- Self management, cooperation tolerance and active participation help the learning process
- Student learn what is meaningful and relevant to them
- Children are able to self evaluate (behaviour, learning, attitude)

Looks Like

- Children as co-operative, active participants
- Students prepared and organised for learning
- Self managed students actively engaged in relevant, meaningful learning

Children are reflective and make conscious choices
Children showing tolerance to enable other children to learn

Beliefs about the Role of the Parent / Care-giver in the learning process

- Parents are the primary educators and carers providing for physical, social, emotional and intellectual needs
- Provide powerful role models for their children
- A productive partnership with the teacher greatly assists a child's learning

Looks Like

- Encouragement and support for learning at home
- Modelling strategies for overcoming problems
- Provides for the students physical and emotional needs
- Communicating with the school to enhance learning
- Showing interest in the school ethos and values

3 School Based Practices

Behaviour Management

- Focus on Self Management
- Individual Behaviour Profiles for each student
- Measuring student behaviour in relation to self management
- Study of Ethics

Assessment and Reporting

- Assessment at 3 levels [Whole of State, Whole of school and Individual Student]
- Assessment to inform teaching practices
- School based monitoring to show student progress
- Developing Schooled 'Quality Standards" documents

Professional Development

- Personal Training Log for each member of staff
- Based around System needs, Student needs, Personal needs

Learning Support and Intervention

- Give Them a Hand
- Reading recovery
- Specialist learning staff and trained Teacher Aides

Individualising Student Learning

- A focus through out the school, and especially in Literacy and Numeracy
- Longitudinal monitoring across 7 years of learning

Creating Learning Groups

- Learning Groups [classes] formed according to levels of development as well as age and social development

Eight [8] Key Learning Areas [School based programs including]

- English
- Mathematics
- Science
- Health and Physical Education
- Study of Society and the Environment
- Language Other Than English
- The Arts [including Music]
- Learning Technology

Appendix 10: Willowbank State High School- Summary of IDEAS Trial Report Back to Staff (May 2000)

IDEAS Group Mentor	First round Mentee	Use of concepts and questions	Application	Comments
Zoe		To guide assessment planning for Year 9 and Year 10 English	Detailed process, careful use of concepts and questions for clearly defined reasons Change from previous practice.	Intentional, thoughtful. Students motivated. Initially time consuming, now less so.
(Zoe)	Nicole	Incorporated into an existing assessment piece.	Took something already done and overlaid some of the concepts and questions to check 'fit'. Of some use but not far from existing practice.	Found it daunting because not part of original group and not part of their discussions. Ran out of time.
(Zoe)	Shirley	To develop a Year 9 drama unit	Allowed students more freedom of choice. Concepts being used as a general guide – allowing students to interpret what these mean.	Motivating - increased student productivity. Finds some of the questions hard to answer herself. Not really sure how to interpret the experience.
Cassie		To evaluate the Year 12 Geography trip (as undertaken in past) and guide changes to future trips.	Applied to both itinerary and student tasks Clarifying the purpose, the learning experience and the student evaluation	Different way of viewing this activity – leading to change of practice
(Cassie)	Rebecca	To plan a unit for a Grade 10 Agriculture class – entering a poultry competition	Students did some research, an experiments and presented it at a field day. Used questions for planning and reflecting - by looking at concepts, focussing on whole unit rather than on assessment piece at the end. Refocusing of practice.	Finds it easier to work with the questions than the concepts. Not a big task to incorporate this into planning and reflection. Using the concepts and questions as an Ag. teacher legitimises practice - within a common school. framework.
Emma		Applies concepts and questions to all classroom and departmental planning	Deepened the relevance of work done in the classroom, enriching the community . Has become embedded in practice - a part of how I operate .	Uses the concepts and questions confidently and creatively, as a mental model not a checklist.
(Emma)	Kate	Used concepts and questions to discuss an excursion with drama students.	Getting students to think about 'why'. Reflected on last excursion - very good guideline. Then went through again in relation to proposed excursion	Time a problem. Had intended to plan a unit. An off the cuff experience – perceived as very successful. Had been scared to use it before. Generated some deep discussion.
(Emma)	Jerry	Year 10 computer class - almost by mistake.	Developed a grid of concepts and required competencies - went though as a 'tick and flick' activity – some gaps so did change some activities more purposeful	Reluctant to try - many things come any fade away. This has persisted so am trying it. Sees the value as using 'tick and flick' to identify gaps – a quick way to improve existing practice.
Geoff		Blueprint for all I do in the leadership program – looking at leadership camps for next 3 years (plus other examples)	Reviewed previous camps - students used (modified) questions to evaluate the activities. Very valuable feedback. Deeply involved with this and wanting to change practice.	Old leadership program gone 'out of the window'. Students very responsive – more thoughtful. Also planning the adventure program around school vision.
(Geoff)	Tim	Year 12 Biology class Digestive system	Students developing a stylised concept map of the digestive system. More purposeful – more holistic approach,	Framework for students to be able to contextualise what they were doing. Motivation and understanding increased. It was a way of trying something new.
Deena and Jessie (Deena) *Joint presentation*		To plan and evaluate a hospitality – elective. Providing meals at the Golf Club once a month.	Real life, purposeful experience – running a hospitality venture. Used concepts and questions as a framework for teacher discussion. Also intend to use them to critically evaluate the success of each evening, and to build on the experience.	Teachers and students out of their comfort zones. Using this framework something very challenging able to be planned, carried out and evaluated.

Appendix 11: Willowbank State High School– Summary of IDEAS Trial Report Back to Staff (November 2000)

Presenters	Use of Concepts and Questions	Purpose	Comments
3 teachers (female) (including one mentor)	Year 8 integrated unit (Social Ed. and Computer Studies (using Museum Magnet resources).	Concepts and questions using in planning. Questions used to evaluate the success of the unit both by teachers and students.	As an extension, worked with a group and produced a list of generic questions suitable for students to use for unit evaluation.
2 teachers (female)	Year 12 English (ECM) and Trade and Business Maths – planned and budgeted for a barbecue.	Integrated unit – related to goal setting, planning and budgeting. Concepts and questions used in planning, and as a basis for reflecting on and discussing what had been achieved.	A successful project in that it was carried through to completion. Value of the activity highlighted by the reflection/evaluation. Will be further developed next year. Suggestion an additional question: *what did I learn about my students from this activity?*
3 teachers (male)	Manual Arts - PowerPoint presentation reflecting on a Car Project.	"We've doing this since day 1- it just didn't have a name back then". Used each concept and question in turn to explain how the project addressed each one.	Presentation done in humorous tone. Carried out but on their own terms – complying with the trial but not taking it too seriously. No suggestion of learning or changed practice. However, have taken the trouble to present their project (and themselves as teachers) favourably in terms of the concepts and questions.
teacher (male)	Planning Space Travel Unit (to improve an existing unit) – focusing on 3 concepts: Enriching community, future directions and the application.	Intending to give the students 3 research questions (one from each of the concepts identified), let them choose one and also to choose how to present their findings. Also will use the questions for the students to evaluate the unit.	Questions for research encourage students to make links from their own community.
teacher (female)	Planning a Year 9 Social Education multi-cultural food festival.	Students to plan the unit using the questions. Believes that the students will benefit in many ways form doing this.	Has not actually used the concepts and questions yet – but intends to get the students to use them. So, is saying that she can see the potential.
teacher (male)	Used the questions get the Year 12 students to evaluate their new Physical Education course.	Suggested they were not able to answer very effectively – that they did not have the vocabulary, the experience, or the skills to answer the questions effectively.	Suggests two possible courses of action – start to prepare the students earlier to answer the questions or simplify the questions. Somewhat sarcastic tone.
teacher (male)	A community orientated task – looking at adaptions.	Took the students down to the flooded river and to consider how specific organisms have to adapt to the changed conditions.	Now doing more group work. Relating theoretical work to the real world. More about how practice may have changed than a specific trial. Comments at the end about his impromptu presentation.
teacher (female)	The concepts are addressed day by day in the Arts curriculum.	Nothing specific reported	Commenting that Art is about real life tasks – learning is contextual. Gives some examples of projects undertaken.

Presenters	Use of Concepts and Questions	Purpose	Comments
teacher (female)	To reflect on a Clowning Unit that was not working well. Intend to get the students to evaluate the unit using a simplified version of the questions.	To try to discover what the problem was. Identified self-confidence and adjusted the unit. As a way of thinking about a difficulty.	Some improvement during unit. Sheet prepared for students will be attached to the exam paper – to encourage thoughtful and honest responses.
support teacher (female)	In Special Education context – using the concepts for *Individual Education Plan* (IEP) planning and as guide for reflection.	Provides a framework for thinking – made up of the things you usually think about when you are planning but making them explicit keeps all the aspects in mind.	Went on to comment about the purpose of IEP meetings in relation to each of the concepts – as a way of interpreting and justifying what occurs.
teacher (female)	Agricultural projects – Year 11 and Year 12. Growing and marketing a product.	Used for student assessment – from the concepts and question, generated twenty-five questions.	Project involved group work, planning, budgeting, planting, record keeping, harvesting. marketing. The two classes responded differently – Year 12s more insightful.
teacher (female)	Used to reflect on and justify a Grade 10 English Unit on advertising.	Reflected on the unit using each concept and question in turn. Used as a way of interpreting a unit of work – as a framework for thinking.	Some of the reflections on questions related to herself (e.g. how has this contributed to my development) and parts to the students (e.g. how can I demonstrate what I know?)
teacher (male)	Not used specifically – possibly could use the concepts and questions to evaluate a sports carnival or similar.	Not comfortable with this at present and unsure of its benefits. Can't really see himself using this in class at the moment.	Views it as extra work. Suggests that if questions were reworded, might stimulate people's minds more to give appropriate feedback.
teacher (female)	To reflect on a Year 10 Art Unit on Wearables. Some teacher reflection – some student reflection .	Using each concept and question – talked in some detail both of her own responses and the students' written reflection on the unit, carried out earlier that day.	Likes the concepts and questions and would use them more often if reminded. Believes that the concepts and questions fit well with Art.
teacher (female)	To guide and reflect on the organisation of the Year 12 Graduation.	Thinking back on the experiences and commenting on some of the concepts.	Commented at beginning – had lots to report but would be quick as being timed.
teacher (female)	To reflect on a Grade 9 Business Principles 'Small Business' activity. Some student reflection.	Student reflection using the questions.	Comments related indirectly to some of the concepts e.g. the purposeful nature of the activity, links into the community.
teacher (male) (admin)	Maths class – looking at superannuation process. Related to real world . Concepts used as a broad framework for thinking back on a unit.	Related this to the 'what will it look like in the future?' question – and planning early for retirement. Also tried to relate the unit to real life – to increase understanding of abstract processes.	Intended to use the concepts and questions more extensively but ran out of time.

Appendix 12: Willowbank State High School - Vision and Schoolwide Pedagogy (November 2000)

Willowbank SHS: A school community for the 21st century:

Together we achieve:

- life long learners
- an enriched community
- flexible pathways to the future

Concepts/Questions which guide our practice:

Self Awareness:	What does this experience tell me about myself? What have I learned about myself?
Critical reflection	Why am I doing this? Why am I doing it this way?
Personal development	How has this contributed to my development?
Communication	How could I demonstrate what I know?
Cooperation	How does this experience enable us to learn from each other?
Application	How can this be applied now or later? Within subjects, across subjects, in school, out of school, after school...
Enriching Community	How does this enrich our school community? Enriching learners, teacher as professional, students as employees, physical environment
Future direction	What will this be like in the future? How could this unit be different in the future? What will this be like next time around? Where to from here? How might this topic change in the future?

Appendix 13: Presentations Arising from the Data while Thesis in Preparation

I originally collected data in five schools, then selected three as specific case studies. In four of the five schools, data were collected by me working alone. The situation was different in the fifth school, Willowbank State High School. Dr Dorothy Andrews and I received a USQ Faculty of Education grant to research the development of professional community at Willowbank. We have subsequently explored aspects of the story of Willowbank SHS in the following presentations:

Andrews, D and Lewis. M. (2000) *Creating a School for the 21st Century: Experiences of a Professional Community*, ASET/ HERDSA Conference, Toowoomba, July.

Andrews D. and Lewis M. (2000) The Experiences of a Professional Community: New Images of Leadership and a Shared Pedagogy, ACEA Conference, Hobart, September.

Andrews D. and Lewis M. (2001) *Experience of a professional learning community: From shared understanding to schoolwide practice*, International Literacy and Education Research Network Conference on Learning, Spetses, Greece, July.

Andrews, D., Crowther, F., and Lewis M. (2001) *Teaching: A leading profession for the new millennium: encouraging developments from a school revitalisation project* at the 2001 Education Assembly in Melbourne, April

> Note: While this was a co-authored paper, I had particular responsibility for the section dealing with knowledge creation in schools, drawing on my research generally, rather than the specific cases. The paper explored knowledge creation by teachers from three different perspectives. My contribution was a section relating to teachers as generators of contextualised professional learning and I explored the assertion that knowledge generation was basic to teachers' work. This draws on the notion central to this thesis that through sharing their tacit knowledge and drawing on public knowledge, teachers are able to create capacity building contextualised professional knowledge.

Lewis, M., (2001) *Making professional meaning: The interplay with guiding theory,* Paper presented at AARE National Conference, Fremantle, December.

Andrews, D. and Lewis, M. (2002). The experiences of a professional community: Teachers developing a new image of themselves and their workplace, *Educational Research*, 44 (3) pp.237-254

Lewis, M. (2002) *Knowledge creation in schools: The impact of social and emotional context*. Paper presented at AARE National Conference, Brisbane, December.